

THE AMERICAN FARMER RURAL REGISTER.



"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." Virg.

NEW SERIES.]

AUGUST, 1873.

[Vol. II—No. 8.

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[ESTABLISHED 1848.]

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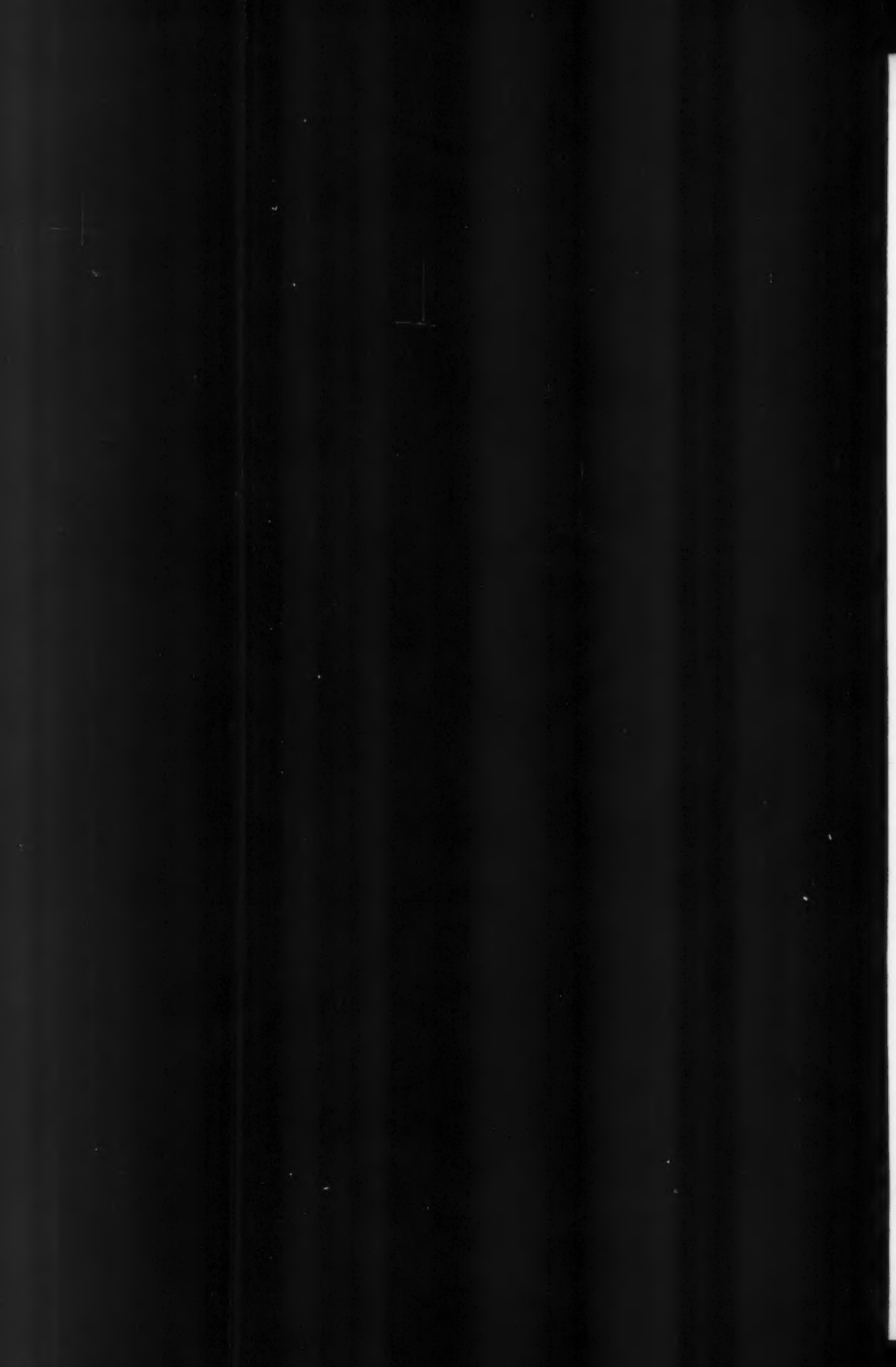
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On the Culture of Wheat.

The harvest of the year is no sooner finished, than the farmer is called upon to look ahead and make preparations for the ensuing crop. In a large portion of the States, it is one of the three great staples, Cotton, Tobacco and Wheat, which are emphatically relied upon to furnish the *cash* for the main expenses of the year.

Much ink has been shed upon the subject of the cultivation of the Wheat Plant, but the whole may be embraced in a very small compass, that to secure a paying crop, three things are requisite, 1st, the land must be in good heart, or be supplied with such manure as will put it in a proper condition to pay the cost of the labor required for the crop—2d, the land thus conditioned, must be properly prepared, by deep ploughing and thorough pulverization—and 3d, good seed, properly gotten in. These may be subdivided into many branches, and we will, without much circumlocution, state the main propositions which are to be considered in the discussion of the subject now on hand.

I. *The Soil*.—The best soils for wheat are those in which there is a just proportion of clay, to give a proper adhesiveness to sustain the plant—hence *clayey loams*, wherein are to be found admixtures of clay, sand, vegetable and animal remains, are undoubtedly the most suitable for the growth of wheat, and to its successful maturation. But a soil not naturally of this character, but partaking more of a *sandy loam*, will produce good

crops, if aided by a green crop, such as clover or peas, or by manures suitable to the wants of the plant. Clover is acknowledged on all hands to be the best preparation, and the very best manure, for a crop of wheat. As remarked by Prof. Voelcker, "the clover plants take nitrogen from the atmosphere and manufacture it into their own substance, which, on decomposition of the clover roots and leaves, produces abundance of ammonia. In reality, the growing of clover is equivalent, to a great extent, to manuring with Peruvian guano; and in this paper of mine I show that you obtain a larger quantity of manure than in the largest dose of Peruvian guano which a farmer would ever think of applying." And he further asserts, that "there is more certainty of growing a good crop of wheat through the instrumentality of clover than through the direct supply of nitrate of soda." This is strong language, but it is from high authority, and we could add innumerable evidences all tending to the same point, but we deem it unnecessary, as no practical intelligent man who has tested the question, or theoretical writer who is acknowledged as an authority, will gainsay the conclusion arrived at by Prof. V. But as in the mouth of two or three witnesses every fact is to be established, we will re-publish from papers upon this subject given in former volumes of the *Farmer*, the following remarks, showing that as a preparation for a wheat crop, there is nothing superior to the turning in of a crop of clover. Dr. Lee, in an able paper upon this subject, published whilst he conducted the *Genesee Farmer*, says:—

"There are 77 pounds of ash in 100 lbs. of dry clover. If this crop be taken from a field for a number of years, without making restitution, it will be found quite exhausting, notwithstanding the power of clover to draw its organic nourishment from the atmosphere. An acre of stout clover, when perfectly dry, has been known to weigh 3,694 pounds, containing 284 pounds of ash. This is some 80 pounds more than is removed from an acre in a fair crop of wheat. It is useful to study the mineral elements of this plant in connection with those of wheat. In 284 pounds of the ash of clover there are of

| | |
|-------------------------------|---------------|
| Phosphoric acid..... | 18.00 pounds. |
| Sulphuric acid..... | 7.00 " |
| Chlorine..... | 6.00 " |
| Lime..... | 70.00 " |
| Magnesia..... | 18.00 " |
| Potash and soda..... | 77.00 " |
| Silica..... | 15.00 " |
| Oxide of iron and alumina ... | 00.90 " |
| Carbonic acid..... | 71.00 " |

283.90 pounds.

"Throwing out of the account the 71 pounds of carbonic acid, we have 213 pounds of earthy matter. An acre of *wheat* needs, to feed both seed and straw, 17 pounds of phosphoric acid. An acre of clover will furnish 18 pounds.—That quantity of wheat needs 2 pounds of sulphuric acid. An acre of clover will supply 7 pounds. The former needs 1 pound of chlorine—a substance that forms 60 per cent. in common salt—clover will furnish 7 pounds. Wheat (an acre) needs 16 lbs. of lime. Clover will supply 77 pounds. Wheat needs 13 pounds of magnesia. Clover will supply 18 pounds. Wheat needs 24 lbs. of potash and soda, (and an excess). Clover will furnish 77 lbs. Wheat needs 121 lbs. of silica, of which clover can only furnish 15 pounds. Except silica, or sand, it will be seen that an acre of good clover yields all the several minerals needed by a crop of wheat; and some of the more valuable ones, in large excess. In its organic elements it is not less abundant.

| | Carbon. | Oxygen. | Hydr'n. | Nitr'n. |
|------------------------|---------|---------|---------|---------|
| Clov. has in 3694 lbs. | 1750 | 1396 | 185 | 78 |
| Wheat crop, | 1487 | 1292 | 171 | 82 |

"It is particularly worthy of note, that clover yields more than twice as much *nitrogen* as both the wheat and straw require. It is proper to state, that to make 3693 lbs. of perfectly dry clover, one must have 4675 lbs. of common clover hay. But in ploughing in clover for wheat, we gain all the stubble and roots, in addition to what the scythe clips in mowing."

We will show by a table constructed on the above premises laid down by Dr. Lee, and presuming that good crops were grown in each instance, the *organic* and *inorganic* substances which enter into a full crop of clover, and those which enter into a full crop of wheat, each being the product of an acre of land:—

ORGANIC CONSTITUENTS.

| | Carbon. | Oxygen. | Hydr'n. | Nitr'n. |
|-----------------------------------|-----------|-----------|----------|---------|
| Clover has in product of an acre, | 1750 lbs. | 1396 lbs. | 185 lbs. | 78 lbs. |
| Wheat crop has do. | 1487 lbs. | 1292 lbs. | 171 lbs. | 82 lbs. |

| | | | | |
|---|----------|----------|---------|---------|
| Excess of organic food in clov. crop over dem'd wh't. | 263 lbs. | 104 lbs. | 14 lbs. | 46 lbs. |
|---|----------|----------|---------|---------|

Thus then it is clear, that, so far as the nutritive or organic food of an acre of wheat may be concerned, an acre of clover turned under will more than supply it. Now let us see how stands the comparison as regards the

INORGANIC OR EARTHY PART OF THE FOOD.

| | Phos. acid. | Sulph. acid. | Chlorine. | Lime. | Magnesia. | Potash & Soda. | Silica. |
|--------------------------------|-------------|--------------|-----------|---------|-----------|----------------|----------|
| An acre clover will furnish of | 18 lbs. | 7 lbs. | 7 lbs. | 70 lbs. | 18 lbs. | 77 lbs. | 15 lbs. |
| An acre of wheat needs | 17 lbs. | 2 lbs. | 1 lb. | 16 lbs. | 13 lbs. | 24 lbs. | 121 lbs. |

By comparing the above table we see that in every instance except one, the supply of food furnished by an acre of clover turned under, is more than sufficient to supply all the demands of an acre of wheat. The single exception in which the crop of clover fails to come up to the demands of wheat, is that of *silica*. Now as every field abounds in sand, all that is necessary to be done to supply this deficiency, is to apply a few bushels of ashes, or say 50 lbs. of potash, to dissolve the sand and put it in a condition to be taken up by the plants in a liquid silicate form.

But all who wish to put in a crop of Wheat may not have the facilities afforded by a clover crop, and consequently other means of fertilization must be resorted to, if the land is not in such condition as not to need it, and we opine that this is rarely found to be the case. And to meet the necessities of the plant, we will here allude to the supply of *Potash and Soda*, which it will be seen by the table above given is the greatest in amount, reaching to 24 lbs. in an acre of wheat. *Lime* also is in demand, 16 lbs. being required, and *Phosphoric acid* still more so, reaching 17 lbs.

We refer to our remarks on *Lime*, in the July No. (page 253) in the "Work for the Month," in which it is stated that in a rotation of 3, 4 or 5 years, 10 bushels lime are all that is required for *each year* of the rotation, and had been found equally as efficient as 100 bushels. Now for the wheat crop in the rotation, we would rather rely upon a mixture composed of 10 bushels *Ashes*, 10 do. *Lime*, and 2 do. of *Salt*, than the largest quantity of lime named, for we have by the use of *ashes* the means of bringing into activity the *silica* necessary for the wheat, and which is found in the soil, but which must be dissolved through the agency of an alkaline body, before the plants can take it up; *potash* or *soda*, either, will effect this purpose, and therefore in the application of manure, we must furnish these two ingredients, *potash* or *soda*, in sufficient quantity to act upon the sand of the soil, and form silicates, they being so essential an integral part in the composition of the inorganic substances which enter into the constitution of

plants—121 lbs. for an acre, it will be seen, being required for the Wheat crop. In the *ashes* will be found all the inorganic elements required by vegetable life, which comprise silica, alumina, lime, magnesia, potash, soda, together with sulphuric acid and phosphoric acid. In *salt*, there are soda, chlorine, and frequently sulphate of magnesia, substances all of which enter into the necessities of vegetable life, whereas, in *lime*, when applied alone, except it be oyster-shell lime, we get the calcareous principle alone. Therefore, in the mixture of ash, salt and lime, there is insured to the plants all their inorganic constituents, whilst the lime alone dispenses but one of those constituents.

But it will be difficult in many localities to obtain sufficient ashes to meet the demand in the formula presented—and to meet this difficulty it is proposed to furnish the following substitute for the constituents required in the above formula, viz:—60 lbs. pot or pearl ashes, 2 bushels salt, 2 bushels bone dust, 1 bushel plaster, and 60 lbs. magnesia, or 100 lbs. epsom salts, (sulphate of magnesia.)

Let us now recapitulate—25 bushels wheat, (the amount contemplated to be obtained on an acre,) will abstract 29.50 lbs. of potash, 3.02 lbs. soda, 10.52 lbs. magnesia, 20.56 lbs. phosphoric acid, 1.97 lbs. chlorine, and 16 lbs. lime. These can be supplied by the following mixture, which it is believed will be sufficient for the present crop, and leave behind enough of the several substances, and particularly the bones, to sustain the succeeding crops of a rotation, viz:

2 bushels salt, (refuse of the packers will do,)
4 bushels bone dust dissolved in sulphuric acid (thus becoming a superphosphate.)

12 bushels ashes, (or its equivalent as above in pot or pearl ashes,) and
1 bushel plaster.

As remarked above, this formula will not only supply the inorganic food necessary for an acre of wheat, but the bones, without the various substances which it may be presumed were already in the soil, will be sufficient for the future crops of the rotation. If to the compound above there be added 100 lbs. Peruvian guano there will then be furnished enough nitrogen (ammonia) for the growth of the crop.

We could add much to this branch of the subject, but we must reserve any additional remarks for a future opportunity, before the getting in of the Fall crop.

Preparation of the Ground.—The land intended for Wheat should be put in good order. In the first place, it will not pay to farm wet land for wheat—it is contrary to the nature of the plant to expect success if the land requires draining; therefore if your land is in an unfit condition from this cause, you must by some means relieve it of the surplus water. We will not stop to show in detail the effects of draining, upon the character or texture of the soil; they are innumerable. For the present it will be sufficient to quote Prof. Jas. F. W. Johnson, who in an admirable paper

upon the subject, says, "Not only do deep drains permit the use of the subsoil plough without the chance of injury, not only are they not liable to be choked up by the accumulated roots of plants which naturally make their way into them in search of water, but they also increase the value and permanent fertility of the land, by increasing its available depth. In other words that kind of drainage which is most efficiently performed with a regard to the greatest number of contingencies, will not only be the most permanent, but will also be followed by the greatest number of economical advantages. Nor do the immediate and practical benefits of draining end with the attainment of these beneficial results. It is not till the land is rendered dry that the skilful and enterprising farmer has a fair field on which to expend his exertions. In wet soils, bones, wood ashes, rape-dust, nitrate of soda, and other artificial manures, are almost thrown away. Even lime exhibits only one-half of its fertilizing virtue, where water is allowed to stagnate in the soil."

The advantages of underdraining and subsoiling, has other advantages, as further stated in an essay read before a Farmers' Club—it will rid us of the trouble associated with undue wet or dry seasons; "by the term subsoiling, I do not wish to be understood as advocating the throwing up on top of the land a portion of the subsoil, but simply stirring it up and leaving it where it now is. The advantages of underdraining and subsoiling are, that if thoroughly done, they will nearly free us from any inconvenience from an usually wet season by absorbing and conveying from the land all surplus water, while in an unusually dry season the ground being porous to a greater depth than we usually have it, will hold more moisture, and as the top of the ground dries, this moisture is drawn upward and prevents the roots of crops from being dried up. A piece of ground trodden hard will not absorb water to any amount. If we should keep the dirt stirred often among crops in dry seasons it would draw more moisture from the air than if allowed to get dry and hard. In fact I believe that we may by some study and experiment in draining and subsoiling, connected with a judicious stirring of the ground around growing crops, become independent of any inconvenience or injury resulting from a wet or dry season."

Ploughing.—All land intended for wheat should be ploughed say 6, 7 or 8 inches deep; or if to be subsoiled, the ploughing should be 5 or 6 inches deep, and the subsoil plough permitted to follow in the furrow to stir up the soil, and make it of a tenacity to permit the roots of the plants to have free access to whatever manures may be in the soil—all roots upon minute inspection, will be found to have innumerable small fibres which are sent forth in quest of food, and these cannot have all the facilities to which they are entitled in their mission abroad from the parent stalk or root, if they have to encounter the hard pan which lies below the usual depth of ploughing. As

so much has been said in these pages upon this subject of deep ploughing, (and in Mr. Mechi's mode of farming, and Mr. Maddox's address, both of which are to be found in the present number, allusion is made in an emphatic manner, to its great value,) we need add nothing further upon this head.

If the land is stiff, after being ploughed, it should be rolled, and then harrowed until a fine tilth shall have been obtained—for wheat requires the land to be perfectly pulverized, and that it be rolled before being seeded, whether the seed be sown by hand or by the drill. Of two of the implements for the purposes indicated, the Harrow and the Drill, we have recently had occasion to speak, and will only add, that we know of none which we believe to be comparable to the Thomas harrow or the Bickford & Huffman drill, for the purposes for which they are intended; and we cannot omit the present opportunity to bespeak for the Roller a more general adoption. We have frequently in these pages called attention to its great value in aiding in the pulverization of the soil. The German-town Telegraph, has also been laboring in the same line, and in some recent remarks objects to the idea that the mere stirring of the land with a cultivator in summer is to be considered as *pulverizing* in the proper sense of the term. "It is," (says the editor) to a certain extent of course. No matter how roughly done, it is better than a hard baked surface. Under this condition the soil dries very rapidly. Still the lumpy coarse way in which the cultivator often leaves the ground is anything but pulverization. We see a tendency in some quarters to favor hard-packed earth; but the thorough pulverization we recommend is a very different thing from this. A soil that is thoroughly crushed fine, will not dry out near so fast as one which is coarse and lumpy, and this prevention of the escape of moisture, especially in seasons like this in the east this year, is as well worthy of attention as the manure question, the freight question, the co-operation question, or any one of the numerous ones which are uppermost just now. It is not perhaps easy to carry out a plan after we know it is a good one; but surely something could be done to keep the soil from being so coarse and lumpy as we see it so often after our cultivators have been over the ground. There is something wrong either with the soil or the implements. We want a clod-crusher as well as a hoe-harrow; let it be in the form of a roller."

In our next, we shall resume the subject, and take up other branches thereof—in the meantime, let us urge upon those who do not contemplate the use of the commercial manures, to lose no opportunity of making and saving all the materials at command on their own premises to supply the need of their crops—for, after all, without this help, the most costly manures cannot perform the entire object of their application.

Mr. Mechi's Farm.

We have on former occasions, given the details of the farming operations of some of the most eminent and successful farmers and planters of this country, such as David Dickson, of Georgia, and Jas. Gowen, of Pennsylvania, and others—and now add a brief abstract of the mode of cultivation of his farm, by one of the most noted English agriculturists of the present day, Mr. Mechi, of Tiptree Hall. Although the pecuniary ability of each of these gentlemen, will not permit the most of our readers to follow in their wake, even if there were no other objection, yet there are some leading principles in the system of each, which can be made advantageous even to those who farm on a more limited scale. It will be seen that the principal commercial manures used by Mr. Mechi, are Peruvian guano and salt, but with heavy additions of barn-yard manure with which these fertilizers act most efficiently, it supplying the ever needful humus to the soil.

About thirty years ago Mr. Mechi, then a London merchant, and a novice in practical agriculture, found in Essex county, England, 45 miles from the city, 128 acres of land of inferior quality, which he purchased and at once set about improving on a system new to English husbandmen, and looked upon by them as altogether visionary and unsound. He subsequently leased 45 acres for a term of 20 years at \$5 per acre—making 173 acres in all. By applying the same strict business principles to the management of the property that brought success in the London streets, Mr. Mechi proved in time the wisdom of his theories, and not only silenced his critics, but induced them, in some instances, to adopt his way.

Drainage.—At the outset the land was drained in such a manner as to prove lastingly beneficial and profitable; and pipes were laid through which from a great tank liquid manure can be distributed upon any field.

Crops.—The whole of the farm, except about eight acres in lawn and covered with buildings, is kept under the plough, and the crops this year are, in acres, as follows: Wheat, 70; barley, 6; oats, 8; rye-grass, for soiling, 13; peas picked green for market, 16; horse beans, 18; clover, 7; kohl-rabi, 3; mangolds, 7; vetches, 5; pasture, 5. Besides these a large bulk of turnips and sometimes late cabbages are grown as a second crop, for feeding cattle and sheep during the winter.

Rotation.—On the heavy soil clover is sown in the spring with oats, using 17 pounds of

the former on an acre. The oat crop, taking one year with another, yields per acre from 70 to 80 bushels. Late in the fall, the young clover is pastured with sheep. The following June it is cut and cured for hay, and the second crop is eaten off by sheep. Early in October, this clover sod is turned five inches deep and sowed with white wheat, using 63 pounds of seed on an acre, *drilling it in*. The yield averages five quarters or forty bushels to the acre, and often six or eight bushels more in a favorable season. This is followed by red wheat, using the same weight of seed. Before *drilling* in the seed, a top-dressing of 200 pounds of *Peruvian guano* and 100 pounds of common salt is spread on the surface and harrowed in. The salt is said to stiffen the straw. The yield of the second crop of wheat is usually larger than the first, frequently reaching 45 to 48 bushels of marketable grain. Soon after this crop is harvested, the stubble is scarified, and all the rubbish gathered and burned. Then 15 tons of well rotted yard manure are spread on the surface and turned under with a three horse plough, running seven or eight inches deep. A subsoil plough drawn by two heavy horses follows in the bottom of the first furrow, going seven inches more, loosening the soil to the depth of 15 or 16 inches. The ground is left in these "rough lands" until spring. It is then harrowed, ploughed again, and an additional dressing of 300 pounds of guano and 200 pounds of salt is given each acre, and then sown with mangolds. From 40 to 45 tons of these roots are produced on every acre thus treated. For cabbage and kohl-rabi the ground is ploughed and manured in the same way. When these crops are taken off and the ground ploughed, 200 pounds of guano and 100 pounds of salt are spread to the acre, and five pecks of red wheat drilled in. The yield per acre from this sowing seldom falls below 36 bushels. When this is harvested 10 tons of barn-yard manure is put on each acre, and horse beans drilled in, using three bushels to the acre, or the following spring five pecks of small white beans are put in instead. The yield of either sort will be about 40 bushels to the acre. These beans are ground up and fed to horses and cattle. The ground is again well worked, and 100 pounds of guano and 100 pounds of salt scattered on the surface, and white wheat sown. *Vetches* follow the crop of wheat, and these are cut green for soiling, or cured and kept for winter feeding. The land is again manured with 12 tons of yard manure, and then made ready for a crop of kohl-rabi, the plants being raised in a seed-bed, and when large enough transplanted in the field. This crop is valued highly in England for winter food for cattle, and in this case ends the rotation on the heavy land. The next spring a dressing of 150 pounds of guano and 100 pounds of salt is applied, and the oats and clover sown.

Stock.—About the first of August of each year, Mr. Mechi buys from 30 to 40 bullocks at \$45 to \$50 a head. These are fed upon

cut hay, cake, barley and bean meal always steamed before feeding. The cattle are fed at regular intervals, three times a day, and given all they will eat. Late in the fall and during the winter, sliced turnips are mixed with the other food just before feeding time. These cattle are kept until the first of April, when they are fit for the butcher. Their market value is then from \$130 to \$140 a head. Beside these, from 150 to 175 head of sheep are kept on the farm. The main object in keeping and feeding stock is to make manure. Mr. Mechi says there is no profit in making beef, but the advantage comes from the grain, and for full crops, manure in large doses must be applied, and fattening cattle is the cheapest way of securing a supply. From the number of cattle and sheep named, including six or eight farm horses, about 1,400 two-horse wagon loads of manure are made annually.

Labor.—Nine men are employed the year round. They begin work at 5 o'clock in the morning and quit at 5 o'clock in the afternoon. At 8 o'clock they stop for breakfast and are allowed three-quarters of an hour; and from twelve to one they stop for dinner. Up to this year, the regular wages for these steady hands has been three dollars a week, out of which they find themselves. During the harvest time extra help is employed, and extra wages allowed the regular help. This season good harvest hands have been very scarce, and higher wages paid than ever before. Reliable field hands were in brisk demand at \$1.50 a day and beer—seven pints to each man, which would make 12 cents more, or \$1.62 a day. It is something new and startling to English farmers to be compelled to pay these high rates.

Profits.—Every intelligent English farmer knows, that without capital, farming cannot be made to pay. The usual allowance is £12 per acre, and with less than this one is constantly working at a disadvantage. Mr. Mechi goes beyond this, and uses £15 for every acre he works, and he considers this sum none too much for the style of farming practiced at Tiptree Hall. His ledger account shows an average net earning of 12 per cent. on the capital invested.

Either labor or exercise carried to exhaustion, or even to a great tiredness, expressed by "fagged out," always does more harm than the previous exercise has done good. All running up stairs, running to catch up with a vehicle or ferry boat, are extremely injurious to every age and sex, and condition of life. It ought to be the most pressing necessity which should induce a person over fifty to run twenty yards. Those live longest who are deliberate, whose actions are measured, who never embark in any enterprise without "sleeping over it," and who perform all the every day acts of life with calmness. Quakers are a proverbially calm, quiet people, and Quakers are a thrifty folk, the world over.—*Dr. Hall.*

Dr. Maddox's Address.

At the June meeting of the Washington Co., Md., Agricultural Club, Dr. Thos. Maddox, well known as one of the best farmers of the State, by his practical papers furnished in the correspondence to the *American Farmer*, delivered an address to the Club, which at its request has been published. We copy for the benefit of our readers, such portions of it as are not of a merely local character.

The Dr. after a beautiful exordium as to the necessity of labor entailed upon their descendants from the fall of our first parents in the Garden of Eden, thus proceeded:

"Since the fall of Adam, man must work, he cannot live without work. 'In the sweat of thy face shalt thou eat bread.' 'The thorns and thistles' must be destroyed by labor before the earth will yield her increase. Labor is honorable, contributing to the health and happiness of the human family, and is essential to the welfare of the state. Success in farming requires daily, judicious, persevering, trustful labor; otherwise, good seed, sown in good soil, may be choked by 'the thorns and thistles.'

Agricultural labor, to be successful, must be controlled by intelligence. Brains are necessary to success in agriculture. A man may rise before day, and work till after night, may sow with diligence and reap with care, but unless the farm work is done in the proper way, and at the proper time, the result of the effort will be a failure. Season and climate have a limited influence over soils; there are no bounds to the influence exerted by well trained, intelligent mind over the soil.

In England, less than a century ago, the crop of wheat was sixteen millions of bushels per year. The crop has increased to one hundred millions of bushels. This enormous increase is attributable to systematic attention to all the requirements of good farming, to the skill and exactness with which all farm operations are performed, to the careful selection of the best varieties of seed, and to the large quantities of barn-yard manure annually made and properly used by her farmers. In 1837, the first year foreign bones came into use, as a fertilizer, the imported bones were valued at the custom house at \$1,500,000; since which time, it is estimated that the English people have paid for imported bones alone \$150,000,000. Since 1841, upwards of 500,000 tons of guano have been used. In 1844, a merchant of Cincinnati told me, 'You cannot see a bone in the streets of the city. All the bones from the slaughter houses, from the hotels and streets are collected for exportation—sent to England to enable her farmers to make wheat and turnips; that all the bones of the soldiers from the battle-field of Waterloo had been collected and

taken to England for the same purpose. The English farmer cannot make wheat and turnips without bones.'

Our Washington county land will not produce as much wheat per acre as it did twenty years ago. Why? Because, year after year, our farmers have been taking large crops from their fields, and have not used a sufficient amount of manure to restore the fertilizing principles thus taken away. If we take more from the soil than we restore to it in manure, the land becomes poorer. The tendency of such farming is to so reduce the fertility of the soil as to make farming precarious and unprofitable. If we wish our county to occupy a respectable position in the wheat growing region, we must improve our farms, farm less land, graze less, make more barn-yard manure.

In England, the farms have been limed in the past thirty years three or four or five times. In Lancaster and Franklin counties, Pennsylvania, many farmers have limed their farms, some of them more than once. The effect of lime continues from ten to twenty years. The great agricultural chemist, Baron Liebig, says a soil may contain all the elements of fertility, but chemically they may be inert; they exert no chemical influence over each other. But the application of lime originates a series of chemical influences, which will, in turn, revolutionize the condition of the soil. 'We all know the effect of yeast. 'A little leaven leaveneth the whole lump.' I have limed three or four fields. I am sorry I did not lime all the farm years ago. I think lime strengthens the soil—that all manures are better on limed soils.

Clover is a valuable fertilizer; its long, deep roots penetrate far down into the subsoil. But grazing clover too soon and too close, dwarfs its growth, and in this way clover may be used without imparting strength to the soil. One full grown crop of clover ought to be left on the field, if we wish to realize the full benefit of clover as a fertilizer.

The manure bank is the farmer's best friend. No time, no care, no labor ought to be spared in making manure in the barn-yard. Straw, fodder, litter, soil, everything ought to be placed in the barn-yard or in the hog-pen yard, where there are separate yards. Vegetable matter ought to be animalized in the barn yard. Wet straw, litter, &c., is not the best of manure.

Liebig says 'where there is no phosphoric acid in soils, we cannot make wheat; where there is no sulphuric acid in soils, we cannot raise clover.' By the application of bones we get phosphoric acid; by the application of plaster we furnish sulphuric acid to the soil.

Fifty years ago, John Simms, living near the Patuxent river, St. Mary's county, Maryland, raised one hundred and twenty-eight and one-quarter bushels of corn to the acre. A larger quantity has been raised in this county. We do not raise now more than thirty bushels of corn per acre. Why? The truth is, our land is too poor to yield large crops of corn or wheat, or hay, or potatoes,

or cabbage. We have taken more from the soil than we have restored to it. Our system of farming has been exhausting. We must change our plans.

We hear much talk about the 'fly' in wheat, the 'red weevil,' the 'rust,' the 'scab,' &c. The truth is, that poor farming makes poor land, and poor land keeps the people poor. Let our farmers put their farms in good condition and farm them properly, and we shall have good average crops. The 'fly,' the 'red weevil,' the 'rust,' and the 'scab,' exert the most injurious influence on thin, exhausted, poorly farmed fields.

Well farmed, Washington county will contribute five times as much to the comfort and sustenance of the human family as it does now.

Men lay up money when they expend it in useful and permanent farm improvements; in increasing the fertility of their soil; in applying improved methods of saving time and labor; and money so invested usually yields a good per cent. in interest.

If we want pretty gardens, verdant meadows, fruitful orchards and productive fields, our people must go to work. Washington county has immense natural advantages. Our grand and beautiful mountains on the east and on the west, shield us from the severe and piercing north winds. The air we breathe is pure, refreshing, invigorating. We want neither ditches nor dykes. We have a canal, railroads and turnpikes. But to make our county a modern Garden of Eden—a paradise on earth—we want sensible, decent, prudent, energetic, industrious, working people; men who are not afraid to improve our soil, to test its capacity, and to develop our immense natural advantages."

[The following is a just compliment to Mr. Brackenridge, and coming from the source it does, (Meehan's Gardeners' Monthly) renders it still more emphatic.—*Eds. A F.*]

GARDENING AT JOHNS HOPKINS HOSPITAL.—Mr. Johns Hopkins, of Baltimore, has donated a large sum of money for a hospital in Baltimore. It is gratifying to note that Mr. W. D. Brackenridge has been selected as the landscape gardener. It is an encouraging sign when those who have charge of these public works have judgment enough to select the right sort of talent to do credit to these undertakings. The selection of Mr. Brackenridge is a rare instance of good judgment, and the Commissioners deserve encouragement for such a judicious choice.

DESTROYING CATERPILLARS.—An excellent remedy, which has been used on a large scale in Southern France, consists in a dilute solution of sulphide of potassium, at the rate of about one part in five hundred. The infested plants are to be sprinkled with the decoction by means of a garden syringe, and it is said that vegetation is not in the least injured by its application.

The Vineyard.

To the Editors American Farmer:

I send herewith the promised paper on the *Oidium*. The pamphlet of Mr. Mares is so instructive and interesting throughout, that I regret the necessity for its abbreviation. I have been compelled to omit many of his most useful observations; but even this abridgement of his work will be of much value to the wine-growers of our country. I hope some of our agricultural implement manufacturers may be induced to import a *Vergnes-Bellows*, and endeavor to perfect the instrument. It will be seen that the cost of sulphuring vines in France is (for three applications) \$4.44 per acre. In the U. States it would probably be twice or thrice as much, but the expenditure would be small compared with the value of the wine-crop saved thereby from total and sudden destruction. L. G.

Anne Arundle Co., Md., July, 1873.

Manual for the Sulphuring of Diseased Vines.

By Henri H. Mares, of Montpellier, France.

The means which I describe in this work have all been subjected to the proofs of a daily experience, from which I have each year obtained the most complete and satisfactory results. The idea of applying sulphur to the cure of the vine-disease is old, and dates almost from the first appearance of it, for it was proposed by an English gardener, Mr. Kyle, in 1846, and by Mr. Tucker, the first observer of the *oidium*, who combined sulphur with lime; but it received then little attention.

It is in France that this application of sulphur has been really studied and propagated. Thus, in 1850, M. Gontier, of Montrouge, obtained from it excellent effects, and devised the use of the bellows to administer it, after having first moistened the branches and grapes. In 1853, Mr. Rose Charmeux conceived the idea of scattering dry sulphur on the foliage and diseased fruit. This idea rendered the use of sulphur practicable in large vineyards. But to obtain in every case, from the use of dry sulphur, sure and complete results, certain conditions must be complied with, which had not been sufficiently described. It needed a more complete study of the disease itself and of the action the sulphur has, whether on it or on the vine; and the exactitude of scientific observations, demonstrated by the practice of several years, in vineyards of vast extent, and under the most varied circumstances, to insure a success that none could doubt of. This was the task I undertook to perform. But before explaining the methods of operation which I have deduced from my researches, it is necessary to say a few words of the march of the disease, of its characteristics, and of the causes to which we should attribute it.

Development of the disease.

The vine may be attacked by the disease at all epochs of its vegetation: it only needs a series of hot days for it to appear here and there on varieties particularly accessible to its ravages. Such developments very early in the season (April, for instance,) only occur in plants already invaded during the preceding year. A few buds of these will appear as if more or less powdered with flour, and soon wither. It spreads as the weather gets warmer, and then its ravages take a general character, no longer limited to a few isolated stalks. Thus at the time when wheat ripens,* it is seen to break out on all the plants at once. The vines then take a peculiar yellow color, and if you closely examine their leaves and fruit, you will find them covered with a white dust or efflorescence of a peculiar musty odor. From this time the oidium extends over immense surfaces, over entire countries, swifter or slower according to the weather, attacking every variety, enfeebling their vegetation and destroying their fruit during the heats of July and August. It is then only the shoots become covered with black spots, that the leaves curl up and dry, that the grapes, first powdered with white, become covered with brown spots, split and dry up. Such is the general course of the malady; and the injury is greater when a warm summer succeeds a rainy spring. Stony, shallow soils are those where the ravages are greatest. Vines on trellis and otherwise high trained are more affected than vines in souche. Certain varieties, known and noted in every vineyard, resist better than others the attacks of the disease. Old vines suffer much more than young ones; their product becomes null.—Good cultivation does not keep away the disease, but gives the vine more power to resist it. It is the same as regards manuring.

Character of the vine disease.

Wherever the vine disease has been observed, it has been characterized by a little cryptogam or mushroom, named *oidium Tuckeri*, after Mr. Tucker, who first observed it. The appearance of this little mushroom, similar in the first days of its development to a whitish mold, is the *fundamental characteristic* of this disease. It cannot be recognized except by the presence of the little mushroom, and wherever this last is established on a vine, it is diseased; so that the study of the disease itself and that of the oidium are inseparable. It is only the different developments of the oidium that give to the disease its divers aspects, according to the epoch when it is examined, and the degree of intensity it has acquired. The yellow and dull aspect which the diseased vine takes at the beginning is the first symptom of the oidium; the white spots seen on the shoots, leaves and fruit, signalize its presence and the stage of its very active vegetation; the musty odor

which the vine exhales and the gray color noticed, after a while, on the parts attacked, is owing to the state of old age of the mushroom; and the black spots which appear along the shoots are the indelible traces of the alterations its presence on the surface has produced. Finally the cracking and drying of the berries, the curling and premature falling of the leaves, the development of the inter-leaves, are the consequences of the profound and long continued disturbance which the oidium has carried into the vegetation of the vine. It is a parasite which feeds at the expense of every organ of the plant on which it establishes itself. Down to this time it has not been observed anywhere else than on the vine. The cryptogam seen on various fruit trees, on hops, on the bind-weed and rose bushes, are all different from the oidium of the vine, although their structure may be analogous to it. The oidium mould consists of an enormous number of creeping filaments and spores. These sporules perform the function of seeds of the mushroom parasite; they germinate and reproduce it in all its parts. Each little surface covered with mould may be considered as a nursery, capable of furnishing a prodigious quantity of reproductive elements, and which the movement of the air will spread on all sides. In hot and damp weather it can suddenly infect great extents of vine-plantation. In the early stage of its appearance the tissues on which it spreads are not impaired. We may then prevent the bad effects of this parasite by attacking and destroying it as soon as we see it appear and before it is established on all the vines of a vineyard; whereas, if we wait too long, the evil is done and no remedy can avail.

Conditions to be fulfilled to combat the disease.

In placing ourselves at this point of view, the problem of how to combat the vine disease revolves itself into that of destroying the oidium, or its germs, in all stages of their development, and on every part of the vine. I have made, toward this end, for several years past, a great number of experiments of all kinds, and I have realized that it was hardly possible to destroy the disease by attacking, during the slumber of vegetation, the germs which reproduce it. The means employed may accomplish it, and the disease will not disappear for all that. In effect, as soon as vegetation is in movement, a cloud of reproductive oidium germs, transported by the currents of air, light upon the green portions, and the disease breaks out anew; the oidium fructifies, implants itself everywhere, destroys the fruit and emaciates the vine.

The methods which aim at merely curing the diseased grapes are still more insufficient than the preceding, because they leave the disease full sway during the first three months of the vegetation of the vine, the very time when it is most redoubtable; and abandon altogether to its ravages the shoots and leaves.

* Wheat ripens in the South of France from the 20th to the 30th of June.

As we can only certainly know the presence of the disease by that of the oidium, and as it fastens only on the green parts, it is upon these green parts we must attack and destroy it as soon as the parasite begins to make its appearance there.

The conditions to fill are therefore the following:

1st. To operate on all the green surfaces of the vine in vegetation, penetrating wherever that fine dust can penetrate which forms the spores of the oidium.

2d. To renew as often as necessary the application of the destructive agent employed against the oidium, since the means of reproduction it possesses are incessantly at work, and it can develop itself anew as soon as the green surfaces cease to be protected from its attacks.

3d. To apply the remedy before the oidium has been able to impair the tissues of the different parts of the bud—above all, *when it is young*. This last condition is the most indispensable, because, if we fail to destroy the parasite until it has more or less affected the parts, we shall obtain but a partial result at best—the evil is already done.

These three conditions should be fulfilled by means that are sure, practical, not too costly, and which do not interfere at all with the divers operations of cultivation.

Properties of Sulphur.

The object is attained in an admirable manner by the flour of sulphur. It possesses, in fact, all the properties necessary to constitute it the curative agent *par excellence*. On the one hand it destroys the oidium whenever coming in contact with it; and, on the other, its form being that of a very fine dust, enables it to envelop by a simple aspersión the entire plant in vegetation; and its volatility in the temperature daily produced by the heats of summer on the earth and the green surfaces exposed to the sun, insures its action on the mischievous germs. It has besides, the property, as remarkable as unlooked for, of *stimulating the vegetation of the vine*, thus communicating to it vigor to conquer the attacks of the parasite.

Action of Sulphur on the Oidium.

By direct observation under the microscope, we are able to see that the grains of flour of sulphur cause the oidium to perish when they enter in contact with it. One condition seems always necessary, which is that the temperature should be above 68° of Fahrenheit when the contact takes place. As the oidium does not propagate itself or develop rapidly until the temperature reaches 77° to 95°, such a heat insures the action of the sulphur against every increase of the disease. The action of the sulphur is quick, but it does not become apparent until after a few days. When the sun strikes the diseased parts which have been covered with sulphur, the action is rapid, and it becomes apparent from the second day, and often sooner. A sulphuring well applied

will therefore destroy the oidium; but as the vine grows continually, and the grapes enlarge daily, as the wind and rain carry off all the while some of the sulphur from the surfaces, they are exposed to new attacks, and the oidium again appears, as it did at first. This occurs ordinarily after an interval of twenty to twenty-five days, or sometimes longer. Again, it may happen that the oidium will not make a second appearance in serious form, especially if the weather continues very dry and hot, and the sulphur rests a good while on the ground and on the plant. The high temperature produced by the sun vaporizes the sulphur in a perceptible manner; and it gives out a lively odor, which all must remark who have employed it. That portion which falls on the ground feels most the effect of the heat and passes into vapor. Thus the sulphur which was spilled and seemed lost, produces the happiest and most continued effects by passing daily into vapor under influence of the sunshine. Its molecules thus penetrate numberless points on the foliage and fruit that might not otherwise be reached.

Sulphuring of diseased vines.

The sulphuring of vines is an operation which consists in spreading over the foliage and fruit the flour of sulphur—obtained by sublimation: and three conditions are necessary to obtain a good result.

1st. The application must be made *as soon as the oidium begins to appear on the vine*.

2d. The sulphuring must be renewed as often as the parasite renews its attack.

3d. The application should be thorough, and reach every infected part.

The fundamental principle is this: scatter the sulphur on every green part upon the first appearance of the symptoms of the disease, and renew the application each time it reappears. It may be applied at all hours of the day when it does not rain; and it is indifferent whether the surfaces where it lodges are wet or dry—the action is the same. It will destroy the oidium wherever it touches it, provided the temperature is not below 68° Fahrenheit. At the same time the best conditions for employing sulphur are, a dry and hot day, a brilliant sun, a light wind to aid its dispersion, and dry surfaces to receive the powder. In my practice I have found that in the greater number of seasons two or three sulphurings arrest very well the effects of the disease; three have been enough in those years when the malignancy was remarkable.

Manner of applying the Sulphur.

We can, if we choose, fling sulphur upon vines without any instrument, or we can dust or dredge it over the foliage from a thin muslin bag; a sieve may also be made to serve; and the effects will be good if the operation in any of these ways be but carefully done. But the waste is great in such case, and a strong wind arrests the work entirely. It is therefore important to adopt a good instrument. The quantity of sulphur necessary

might be almost indefinitely reduced if it were divided to infinitude, and if we could spread it with perfect regularity and uniformity, for great masses of it are not needed to produce the desired effect on the oidium. With powder perfectly divided, and a suitable instrument, a great economy of sulphur may be realized. The instrument should satisfy the following requisites:

1st. Throw the sulphur dust far enough, and scatter it uniformly, so as not to fall in lumps.

2d. Be able to augment or diminish at will the issue of dust.

3d. Not be inconvenient to the person who uses it.

4th. Facilitate the work.

5th. Be easy to handle, even by women or children of twelve years.

6th. Be strong and not require repairing.

7th. Be of sufficiently low price.

Down to the present time the instruments in use do not meet all these requirements; but, if they have not yet attained the perfection of implements that have been subjected to the tests of a long experience, they can nevertheless do good service. Among those instruments are the following:

The Vergnes Bellows.—It is a common bellows without a valve, and whose whole interior serves as a receptacle for the sulphur. At the base of the nozzle is a sieve with large meshes, and made of coarse tinned iron wire; the sulphur is thus prevented from going out in lumps, and the tin preserves the iron from too rapid corrosion. The air comes in and goes out by the same way, by the nozzle, which should have at the base a sufficient diameter to be slightly conical. A two inch hole is cut in the upper board of the bellows to receive the sulphur, and to this hole a stopper of wood is fitted. A pound of sulphur is a proper charge, and this will dose fifty vigorous vines as they are in July, when the shoots cross one another and entirely cover the ground. (A South of France vine in this stage of its growth would take twice as much sulphur as one of our American vines would.) Care must be taken not to overload the bellows, because then it cannot play easily; and the leather soon bursts near the hinge.

The Perforated Box.—This is simply a round tin box, slightly conical, furnished at its larger extremity with a double bottom, pierced with holes, for the sulphur to sift through and pass out. The smaller end has a cover fitted to it, to be opened when the instrument is charged. This is the simplest and cheapest of all the instruments, and has the great advantage of never getting out of order; but it has numerous difficulties. It is fatiguing to the workman, works slowly, distributes the dust badly, and lets it out in lumps, causing great waste. Of all the instruments in use, this one renders sulphuring the most dear and least expeditious. Down to this time I have used, notwithstanding its inconveniences, the Vergnes bellows, and with it the results have been obtained which I describe. Doubtless better

results as to economy might be obtained with a more perfect instrument.

Precepts to follow in applying Sulphur.

The vines attacked by oidium should be cultivated with special care; they should have no weeds about them and the earth should be kept loose. Everything that enfeebls vegetation favors the action of the disease. The invasion of the parasite mushroom troubles profoundly the vegetation of the plants; and they must be reanimated by cultivation, while the parasite is being destroyed by sulphur. But when a vine has been sulphured, it is proper to wait a few days before ploughing. What of the powder falls to the ground should be allowed to volatilize in the sun and rise and condense on the shaded portions. To turn it under with the plough would defeat this process.

It is better to apply the sulphur too early than too late. Sulphurings at the moment of blossoming have appeared to me the most efficacious, as it destroys the oidium at the moment when it is most capable of injuring the grapes. To spare the flour of sulphur is bad economy. The dust should be flung on either by walking all around the plant, or by doing first one side of a row and then the other. If a rain washes off the sulphur the day it is applied, there is no risk in waiting a few days before renewing it. Notwithstanding the rain, the effects of the first application are considerable, provided the temperature has attained 68°. From the time the vine is well in leaf, strong rains even cannot remove all the sulphur. Though the conditions most favorable to its action are dry and hot weather and a clear sun, yet it may be applied in all weather, and nothing should stop it when the need is urgent, unless it be rain. High winds should be no objection. In such cases, it is only needful to use a little more material than in a calm.

Concerning the vegetation of sulphured vines.

The effects of sulphur on the vegetation does not begin to be appreciable until the end of spring, or in summer, about eight days after the application. Then the branches are seen to recover their beautiful green color and to vegetate with new vigor. At each application the same effect is manifested in a marked manner. I have before alluded to the favorable influence of sulphur on the blossoming. This fact, so important, does not apply solely to the vine. I ascertained in 1866 that sulphur favors the fructification of a great number of fruit trees, and particularly plum, quince, pear and apple trees, and exerts on their vegetation a powerful influence. From this point of view, we may arrive at the conclusion that vines should be sulphured when in blossom, whether the oidium is present or not.

A more even ripening, and probably, a special action of the sulphur on the coloring matter of the grapes, makes the wine from sulphured grapes have a higher color. Sul-

phured vines preserve their leaves with remarkable persistence. Their products in grapes have been those of good years. Their wood is vigorous and the shoots present the following year a show of fruit more abundant than vines that did not take the disease. The effect of sulphur on diseased vines is really marvelous. The same vine, divided in two equal parts, has given me, according to the virulence of the disease, two or four times more fruit on the sulphured part than on the other.

Of the quantity of sulphur necessary for the treatment of the disease.

Cost of sulphuring an acre in May.

12 lbs. flour of sulphur at 13½ centimes...\$0.32½
Wages of a woman at 1 franc per day
of 8 hours......16

Total.....\$0.48½

Cost of sulphuring an acre in June.

40 lbs. flour of sulphur at 13½ centimes...\$1.08
2 days labor of a woman, 5 hours effective at 1 franc......40

Total.....\$1.48

Cost of sulphuring an acre in July.

48 lbs. flour of sulphur at 13½ centimes*...\$1.30
Labor of a woman 3 days at 1 franc....60

Total.....\$1.90

In most kinds of vines, sulphuring in July costs no more than in June, and \$1.48 may be taken as the cost per acre from June onward. For two applications then, the cost will be \$2.96; and for three, \$4.44. The quantity of sulphur used will be from 80 to 120 pounds per acre. This last figure is the *maximum*, and is rarely reached; and in most vineyards the *minimum* is seldom exceeded. Better sulphur than I have used would cost more, but less of it will be needed. The dryer it is, the farther the same quantity will go, and the less the labor required. Practically there is no more simple operation than sulphuring vines, even when they are in their fullest luxuriance. Where the vines are trained to stakes as in Bordeaux, Champagne and the Bordelais, far less material and labor are needed. Comparing the results obtained with the expenditure, no operation can be more advantageous: the vines are preserved to the soil, and their products saved from the worst scourge that has ever attacked them. For those who would free themselves from the trouble of watching over their vines, and care little about the additional expense,—who prefer a rule ready made,—there is a manner of procedure equally sure with that described in this paper, viz: *to apply sulphur to their vines every twenty days, beginning at the moment when the shoots have attained the length of two inches, and continuing till the grapes begin to color.* By this system, which is based on

* Five centimes equal one of our cents.

the interval which separates ordinarily the reappearances of the oidium, the average cost of material and labor will be double that which I have given as the highest estimate.

Agricultural Calendar.

Work for the Month—August.

Harvest now being well over, there is less need for hurry, but none the less for thoroughness in the work on the farm. The labor of preparation for the future is now upon us, and that as we sow so shall we reap, is peculiarly true of those cereals which are soon to be committed to the earth. Ample and prompt preparation is necessary for the best attainable yields, and the attentive and thoughtful farmer need not be told that one open road to a solution of the difficulties surrounding his class lies in the reaching for and attainment of better farming as a rule. The diffusion of labor and manures over wide instead of restricted areas, the following of antiquated and unreasoning routine, must give way to better and more thorough culture and more enlightened and philosophic systems. The agriculturist of this day cannot afford to reject or neglect the teachings of science, and while we can neither expect nor recommend the farmer to become a chemist or geologist, we do advise him to avail of the practical suggestions which are presented from time to time for his consideration and guidance by those whose duty or profession it is to enquire into the arcana of nature, that due profit may be reaped from their labors. It is with this in view that we seek to keep the readers of the *Farmer* posted on the discoveries in science which affect their every-day life. The old beaten tracks of the elders cannot be relied upon now to lead us to fullness and plenty, but we must avail of every help afforded by Science and Art.

Now, however, we glance at those practical operations, to the proper and timely performing of which our monthly calendar is mainly intended to serve as suggestive *hints*.

Threshing Grain.—It is undoubtedly sound policy, whether you intend to sell at once or not, to get your grain threshed out and made ready for market, in order that you may encounter no delay when the proper time comes in the exercise of your judgment

to sell. You are then ready to take advantage of any circumstances which would profit you nothing were you to postpone preparing your grain for shipping.

Granaries.—These should be made ready for their contents by having the floors, sides and ceilings all well washed with hot lye. A plan sometimes adopted to drive off the weevil is to fumigate the premises with burning sulphur: the openings to the granaries are all closed, and powdered sulphur, or brimstone, placed in an iron or earthen vessel, which is put on a bed of sand on the floor, to avoid danger of fire; the sulphur is then ignited, and its fumes are said to be efficacious in getting rid of the troublesome insects.—All litter and sweepings should be carefully burned.

Setting Meadows.—Where timothy is intended to be seeded—and this grass is doubtless the most profitable where grown convenient for marketing—the land, unless naturally rich, must be liberally manured. The ploughing cannot be too deeply or thoroughly performed, and if the land is also subsoiled, the advantage will be undoubted and appreciable. The harrow and roller should follow again and again, until the finest tilth attainable is secured, and every clod broken down. The finer and better the condition of the ground the more effective and certain will be the seeding. Where land is ill prepared, foul and full of stones and lumps, a very large proportion of the seed is wasted, perishing from failing to find a suitable bed in which to germinate.

Timothy is an exhausting crop upon land, and its demands upon the soil must be met by ample supplies of manure, if the yield is to be a paying one. Of well mixed and well rotted barn-yard manure 20 two-horse cart loads will not be an extravagant dose; nor would be, on ordinary soils, 10 bushels of ashes, 200 lbs. bone dust and 2 bushels of salt; or 300 lbs. of a good superphosphate.

Of seed, from $1\frac{1}{2}$ to $1\frac{3}{4}$ pecks to the acre is not too much, and the seed should be carefully and evenly distributed. There are several machines which will accomplish this, among them, strongly recommended by some farmers, is Cahoon's Broadcast Seed Sower. The seed is to be harrowed in by a light harrow, or brushed in. The Thomas Harrow is well suited for this purpose. Finish by rolling.

When your fields are intended for pasture and hay for your own use, and to remain for some years before ploughing under, a mixture of seeds of various grasses is preferable, and a thick sowing will be found true economy. The following mixture is recommended as a suitable one, and should be sown after $\frac{1}{2}$ peck of timothy seed has been sown by itself on land well prepared and well manured: 1 bus. Orchard Grass seed, $\frac{1}{2}$ bushel each of Kentucky Blue Grass and Perennial Rye Grass

seed, 1 bushel Tall Meadow Oat Grass, and 2 lbs. Sweet Scented Vernal Grass seed. It will be well to moisten the orchard grass seed and allow it to remain in a heap over night. The seed should be harrowed in with a light harrow and rolled. Any time during this month or early in September will be suitable for this operation. If to the mixture above given a peck each of Red Top and Wood Meadow Grass and 3 lbs. white Clover be added, the benefits will be correspondent to the expense.

Seeding Rye.—In many sections this is a favorite cereal crop, not the least recommendation in its favor being the high price obtained for the straw when it is grown conveniently for marketing. In this city the past season rye straw has frequently been as high if not higher than the best hay.

A soil of lighter consistency than required for good crops of wheat will do for rye; but care should be had, if the field is not in good heart, to give it a sufficient dressing of some fertilizing material. A good loam, with a considerable proportion of sand, will generally produce a fair yield of this grain, but there is little danger of making the soil too rich for it, as its stem will not be apt to fall, as is sometimes the case with wheat. On light soils, which entirely refuse to produce wheat, a moderate application of manure will result in a profitable crop of rye.

Manures suitable for this crop will be furnished in 200 lbs. guano and 1 bushel of plaster, mixed with 5 two horse loads of marsh or river mud, and spread broadcast and harrowed in; or, 200 lbs. fine bone dust, 10 bus. of ashes, 1 each of plaster and salt; or, 10 double cart loads of woods earth, muck, or marsh mud, mixed with 150 lbs. of guano and a bushel of plaster—this to be ploughed in and a top-dressing of 10 bushels of ashes to be afterwards lightly harrowed in.

The preparation of the soil is the same as for wheat, and whatever pains are taken will be repaid in the success attending the harvest. Clean land, well manured, will give a satisfaction and a substantial reward to the careful farmer which he cannot find in hasty and slovenly preparations.

Quantity of seed and time of sowing.—About five pecks is the quantity usually sown of rye to the acre, but this varies according to the nature of the soil and the time of sowing, early sowing requiring less seed. It may be seeded any time from the middle of this month to the 20th of September, preferably, we think, in this month, if practicable. If the growth becomes too rank, it can be grazed by sheep or calves, this process not at all injuring its yield of grain.

Rye is sometimes sown among corn at its last working, and the plan is attended often with considerable success, the shade giving it an opportunity to start and establish itself. Rye is of late much used for soiling. It is then sown thick, from three to four bushels to the acre being used. It can be cut early, and

comes at a time when a green bite is much relished by horses as well as milch cows.

Turnips.—The flat or Norfolk varieties may be sown any time this month, the earlier now the better. These roots are not in themselves very nutritious, but so large a quantity can be grown on a small area of ground that their value grows in significance. Mixed with other food, dry and coarse, they make an addition to the daily provender of cattle and sheep, the importance of which cannot be slightly estimated. Almost any fair soil will grow turnips; any good corn land certainly will. On freshly cleared land, or on a recently inverted sod, they perhaps do best. As a manure, nothing surpasses in efficiency fine bones or a good superphosphate. From 200 to 300 lbs. of either to the acre will be a suitable dose. Ten bushels of ashes, two of plaster and five each of lime and bone dust, would also be a good application. There is considerable lime, potash and phosphoric acid in the turnip crop, roots and leaves, and these dressings will supply those elements.

The preparation of the ground ought to be thorough, and the last harrowing should immediately precede the sowing of the seed, the early germination of which is thereby promoted. We do not in this country suffer anything in comparison to Great Britain from the insect enemies of the turnip, though here they are sometimes bad enough, and the safest protection against them is probably to secure rapid germination of the seed and growth of the plants. As soon as the rough leaves are formed, the plants are safe. A dusting of air slaked lime, ashes, or plaster upon the plants when the dew is upon them will often rid them of their enemy.

Sown broadcast, about a pound and a half of seed to the acre is sufficient. The seed may be mixed with sand to secure its even distribution. As soon as the plants are 3 or 4 inches high, run a harrow through the field. This serves as a cultivation, and also thins out the plants, which should afterwards be still further thinned so as to stand 8 or 10 inches apart each way. They should, when practicable, be worked around with the hoe, the oftener the better; and the expense is paid in the increase of crop and size of the roots. It is worthy of remark that the labor and expense put on the turnip crop pays well as a rule; the yield is so great, under proper conditions, that the immense amount of food it supplies compensates for your labor and outlay, saying nothing of the manure resulting from the feeding of these valuable but still imperfectly appreciated roots.

Wheat.—The time for putting in this crop is still somewhat remote, although we are accustomed to begin its consideration here. The great importance of this cereal, and the space required for a full and satisfactory treatment of its culture, induces us to make a

separate article upon the various subjects connected with its growth, which will be found on another page of this issue, and to which, with the communications of our correspondents on the same topic, we invite the attention of our readers.

Drainage.—This is a work which can usually be advantageously performed at this season of the year. All wet and retentive soils will be benefitted by any system of drains which will relieve them of their superfluous moisture, but we are not of those who believe that any farmer from printed or written directions, can successfully tile-drain his farm. Experience here is worth a good deal, and in most cases it would pay to hire it when obtainable.

Top-Dressing Meadows and Pastures.—Now is a good time for this. Spread the manure or compost as soon as hauled out and harrow fine. A little timothy seed sown will be an improvement to all pastures.

Making Composts.—When so much material is accumulating on and about the farm from the decomposition of which fertilizing properties might be stored up, do not neglect the opportunity of increasing your manure piles and compost heaps. The dung from the stables and cow and hog pens, the trash and waste from the house, scrapings of the roads, ashes and soot, weeds and grass, all properly saved and mixed together, with an occasional sprinkling of plaster, will in a short time make a great accumulation of considerable value. All substances ever possessed of life, animal or vegetable, will add to the value of this mixture, and should be put in it, rather than be allowed to contaminate the air by rotting in fields and fence corners.

Poultry Houses.—Do not neglect at this season to keep these premises well cleaned out, the nests renewed, and the whole establishment well white washed. The best application for the floors probably is dry earth, and a sprinkling of kerosene oil or carbolic soap suds will be a preventive of lice. Tobacco stems are also useful for this purpose.

Do not neglect to save the manure from this source; nothing made on the farm, and little purchased, compares in strength and efficiency with it. Keep it covered from the weather.

Live Stock.—*Cows*.—Keep these supplied with green forage; if corn is used, give daily a little meal and bran, or mill stuff. See that they have plenty of fresh clean water. *Horses* should be as much as possible protected from the torments of flies, by darkening the stables; and do not allow them to become galled and sore for want of a little attention. *Sheep* often suffer for water. See that they are regularly supplied if there is none in their pasture. Tar and salt should be kept in their

troughs as a preventive against the fly. It is time now the lambs were weaned and the rams should be away from the ewes. Hogs should have a run of pasture or be put in the stubble fields, and those to be fatted this fall should be fed well.

Weeds.—Mow these from the fence corners—nothing does more discredit to a farmer than such fringes along each fence on his place.

Correspondence.

California and its Agriculture.

Editors of the American Farmer:

Esteemed Friends: You may remember a request preferred some 12 or 18 months since, to contribute to the pages of your paper; but at that time, both the inclination and subjects to interest your readers were lacking; and now, when the latter present themselves to an almost unlimited extent—quite ample to fill a volume—I am too much occupied in sight seeing in this new world to enter much into details—but will venture on a few paragraphs.

My trip was unexpected, and mainly to accompany a relative in poor health, whom it was thought might derive benefit from such an excursion.

This excursion, from the different States passed through, the many changes in modes of farming and products, adapted to different climates and soils, together with the ever varying and widely different scenes and views, almost surpass the powers and variety of the kaleidoscope.

I do not propose to make much use of my notes at this time, but as this is the midst of the harvest season in California, I thought a brief notice of the crops, mode of harvesting, &c., might interest your readers—being so different from what is practiced with us at the East—and I may here remark, that I have seen some of the finest crops of wheat grown in New York, Pennsylvania, Maryland and Virginia, and including the great wheat growing region bordering on the James river. Nowhere have I seen such extended or splendid crops as are produced in the Sacramento and adjacent valleys in California. Fields of three to five hundred acres are quite common, and others again are met with in half a day's ride, of as many thousands of acres. There are many ranches in this valley with wheat fields of five to ten, and some even of twelve to fourteen thousand acres.

I visited some of the ranches to witness the mode of harvesting, so different from our own. Here, the "cart goes before the horse" invariably; i. e. the machine, or "Header" as it is termed, is not drawn, but is in advance of the horses; a ten foot header is a light labor for four horses; the ground being as smooth and compact as a roller 5 to 6 feet

in diameter and 10 to 12 feet long, can make it, when seeding. The machine is managed by a single hand; guided, raised, or lowered, with entire ease and certainty. The heads of the grain only are taken off; these are carried by an endless apron into accompanying wagons, moving at the side of the machine, and replaced by other wagons as fast as filled, and driven off to the stack yard. Three wagons usually attend one header. But on some of the large ranches, several headers, of 12, 15 and even 18 feet cutters, and ten or a dozen wagons are required, and may be seen in operation in a single or adjoining fields of the same ranche. The average cutting and stacking daily, on a small ranche of three to five hundred acres of wheat, is 25 acres, with 6 hands and 10 horses. In some of the larger ranches the grain is threshed from the header wagons; but all is threshed and cleaned at one operation, bagged, and stored in the open air in the field, without cover—often for two months—until convenient to move it to market. It never moulds even; for six months of the twelve, rarely a drop of rain falls, nor is there any perceptible dew, to injure the grain in the slightest degree, it being fully matured. Wheat is the great crop in this valley—say, in round numbers, some 250 miles long and 80 to 100 in width—though barley is largely grown in portions of it, but mainly for stock feeding. The hay is mainly volunteer, or wild oats, (*they do not sow "wild oats" much in this country!*) cut green, or the Alfalfa clover. I have seen fields of the latter of one to two hundred acres. A single field visited a few miles distant, of 125 acres, as I am informed, wintered and pastured 600 head of stock, and has been twice cut this season for hay; when I visited the ranche, and after the second cutting this season, there was fully twice as heavy a crop of hay in cock as I have ever seen, and as fragrant as a rose; it is called "sweet clover" at Salt Lake. Another field of Alfalfa still larger had one hundred and twenty cows from a dairy literally "up to their bellies" in clover," and were in fine order.

Under some circumstances, I am convinced that the Alfalfa may be introduced and cultivated to advantage in portions of Maryland and West Virginia. It has a long tap root, stands drought admirably, and must "renovate worn-out lands" by judicious management, and yields enormous crops for both pasture and hay.

In appearance, the Alfalfa much resembles the Lucerne, but from what I know of each (for I have grown the latter) there is about the difference stated in a toast of our old acquaintance, John S. Skinner, half a century ago, in reference to Major Adlum's wine, at an agricultural fair near Baltimore, viz: "American wine, good for everything but to drink!" So with the Lucerne; it grew luxuriantly, but my stock would not eat it. Now the Alfalfa here, both as pasture and cut early for hay, is eaten with avidity by all kinds of stock.

The fruits here far surpass all I have seen elsewhere in size and productiveness. The trees are loaded with apricots, almonds, figs, oranges, &c., growing in the open air. In Sonoma county (the valley of moonlight) the orange blooms and ripens the year round; grapes begin ripening about 1st of July, and continue until November, when wagon loads from the vineyards may be seen wending their way to the wine presses. Pears, peaches, plums and cherries are equally prolific, and berries of all kinds. I have also visited some of the extensive gold mines in the adjacent mountains, and I may at a future time refer to these and other productions of this wonderful country—for a wonderful State it certainly is, though scarcely "out of her teens."

They talk here of 30, 40 and 50 and even 60 and 80 bushels of wheat to the acre, and from samples furnished me, and fields examined, I do not doubt that such crops are raised. I shall furnish you with both samples of heads of wheat, and grain, fully bearing out my statements.

Mais, mille rose urns epine. This is the hottest and dustiest country on the continent. For six months no rain falls, and the dusty roads are half a foot deep; with a cloudless sky and vertical sun, the heat is not only oppressive but almost melting at noonday. The sea breeze, however, which usually prevails morning, evening, and during the night, renders the latter as comfortable as could be desired, often too cool in the open air for comfort, unless warmly clad. During the rainy, or winter months, the mud is as annoying as the dust in summer. The North wind in summer is usually the warmest and most oppressive.

A word more as to the wheat crop. Even in the largest yield, the straw is comparatively short—long heads and short straw—and what I vainly aimed to obtain in my farming, for half a century, is here the rule and not the exception, as at the East, and owing doubtless to soil and climate. This greatly lightens the labor and time of threshing; only one-fourth to one-fifth of straw has to pass through the threshers, and with a force of 13 to 15 large mules, or steam power, 1500 to 2000 bushels may be bagged in a day, as threshing machines are on the same grand scale. Nor does the comparison altogether end here, in this fast country; as the fertility of the soil is considered by many inexhaustible, or at all events will last until their "pile" is made, if the great masses of straw too much encumber the ground, a lucifer match soon rids them of the nuisance. No one here appears to think manuring necessary, or an appliance of good farming. Nearly everything is sold by weight, dry goods excepted. Coin is the currency, and I am told, in some sections, if a commodity will not command "two bits," (25 cts.) it is not worth making change for—in fact, in many places, "two bits" is about the smallest coin in circulation. Ice last season 5 cents per pound. EDWARD STABLER.

Yuba City, Sutter Co., Cal., June 20, 1873.

Tobacco Culture in New England—No. 7.

To the Editors of the American Farmer:

In the preceding articles I have endeavored to tell, faithfully, the mode of bringing the crop to the stage where it is ready for harvesting, cutting and housing. If I have failed to give the details in the way each manipulation is performed, I have certainly endeavored to impart such information that ordinary intelligence could supply any deficiency. I have given the experience of many years of practice and observation, not only my own but that of the most successful culturists. We have many who fail to appreciate *high culture*, who are correspondingly less successful in producing extra crops. In all this series of articles, I have endeavored to impress the idea of "*thorough, careful culture*," as the secret wherein lies our success above others in growing, and obtaining extra reward per acre for our tobacco; that allowance is to be made for soil, climate, etc., in giving quality is certainly true, but that the whole, or anything like it, is to be thus ascribed is equally untrue, for thorough culture not only improves the quantity but the quality also on any soil; while experience enables us to improve on old practices.

Cutting and Housing.—We now come to a point where by a little delay or want of diligence, promptness or attention, much loss will result. Where there is a considerable quantity to harvest, one of several things must be: either we must have the crops ripen successively or procure sufficient careful help to house it rapidly, or the tobacco will injure in the field. The most successful, with whom I am acquainted, are averse to growing so largely as to require much extra help at harvesting, on account of the difficulty of obtaining the proper careful help needed for the economical handling of the crop, for often a hand will do more injury, several times over, than his wages amount to. As soon as the crop begins to show signs of ripening, which is determined by the leaves taking on a more rustling appearance, cracking when folded short, assuming a spotted or mottled appearance, cutting and housing is commenced, and is only to be interrupted by foul weather and the necessary time for repose; still hardly the last. The instruments for cutting are various, some using an old style hay knife, axe, hatchet, backed saw, chisel, etc.; it matters little what the instrument is, provided the user is used to it and can use it economically; and that one word, *economy*, means a great deal in successful tobacco culture. I should have said above, that if tobacco is allowed to get over-ripe in the field, it is apt to take on rust; sometimes it rusts before fully ripe; it should be cut as soon as indicated, after topping. In cutting, one plant is cut at a time. Take hold of the stalk with the left hand, two or three leaves below the top, gently lean it over, and with the cutter sever the stalk below the lower leaf at the ground; see that it is completely severed, raise the plant and carefully lay it on the ground

in row, to wilt. Care is used in cutting when the sun shines clear, not to let the leaves get scorched, for they will burn in a very few minutes under a clear warm sun; we usually cut in the morning and haul that before dinner, and again after dinner to haul later in the afternoon. In cutting and handling the tobacco the utmost care, consistently, is observed to preserve all the leaves on the plant, and not to break or bruise any, as the leaves cannot be as well cured in any known way as on the stalk. As soon as the tobacco is wilted sufficiently not to break by careful handling, it is strung on laths, 5 to 7 plants to a 4 foot lath; this is done in the field by the aid of the portable horse herewith illustrated: this consists



of a scantling or pole 8 to 10 feet long, with two legs at one end, the other resting on the ground; the end with legs is raised sufficiently to clear the plant leaves from the ground when strung on the lath. A socket or mortice is made in the leg end of the horse to insert the end of the lath a few inches to hold it while spearing. One end of the lath is made to fit the eye of the spear head or needle, and on this the spear is placed before the lath is used in the horse; this done, insert the other end in the socket, and the lath with spear stands in a horizontal position; while one hands the plants, another takes them, and standing at one side of the lath takes hold one hand at the point shown just above the spear head, the other just below it, and placing it before the spear gives a sudden jerk, piercing the stalk, which is then slipped into position on the lath; when the requisite number have been thus strung, the lath and plants is taken and carefully laid on the ground, and another lath taken and used as the first; 3 or 4 or more laths filled are placed in pile for convenience in loading. When a convenient quantity is thus speared, the team is hitched up and the tobacco loaded and hauled in.

The illustration herewith, will give some idea of what the rigging consists, and the



manner of loading, etc. It consists of a common box wagon body on wheels, etc., and 4 or 6 strong stakes, on top of which is a frame

scantling for the lath to rest on; this frame is braced to secure against accidents when loaded; the stakes which support it are of sufficient length that the tobacco will swing clear of the bottom of the wagon body. The wagon is driven into the field alongside the tobacco, and while one stands in the wagon, other help pass up to him the loaded lath, and he puts them in place as close together as possible, commencing at the forward end of the frame; when full, the last is secured by a chain across from side to side; the load is then driven to the barn, (figured in the March No. of the Farmer,) and unloaded, the lath put in place, the ends resting on the timbers in position for their reception at about ten inches apart. In filling the higher tier, the laths are raised by means of a rope and pulley, with a hook to carry the lath; one in the wagon hauls them aloft while another receives and puts them in place. The tobacco is hung so that it will not crowd, but that there may be room for free circulation of air all through when the building is filled with the hanging plants; there should be space between the tiers of not less than 6 inches. When the tobacco wilts down, there will be room around each plant for air to circulate freely; good and free circulation of air is all-important, for upon this, we depend for curing the tobacco; we never use fire or other artificial aid, but let nature take her course after we have done our part in housing it properly; all that is usually necessary is to see that the ventilators are open during fair weather and closed when it is damp, foggy or raining, and nights. All the leaves broken off are gathered up, saved, and hung for curing and go in with the fillers or lower grades. Some of our growers cling to the old way of twining the tobacco on poles, while others are adopting a new patent contrivance or hook, on which to hang it as soon as cut in the field; never having seen this in practice, I am unable to say anything for or against; the theory seems very plausible on paper.

Our tobacco hangs in the curing barn 2 to 3 months before it is sufficiently cured to take down and strip, of which I propose to speak in a future number. Our growers have never met with any serious general disaster with this crop till the last year, when a large part of the valley culturists met with loss. The season, or some other cause unassignable, produced a rot disease in the plant, and where tons of extra fine leaf would ordinarily have resulted, hundreds scarcely were realized. The season was a very extraordinary one, cloudy and damp, the tobacco maturing the largest growth ever known in about 6 weeks; much of the care was necessarily hasty and illy performed.

W. H. WHITE.

The Richmond *Dispatch* of July 3 says, 28 counties in Va. report that a larger than usual quantity of Tobacco has been planted this year. Only the counties of Brunswick, Greenville and Roanoke report a less acreage this year than last.

Col. Willis' Crop of Wheat.

Editors of the American Farmer:

Dear Sirs: Your letter of the 11th inst. has been received, and I reply with pleasure, as the crop about which you enquire may develop facts useful to the agricultural community.

The statement which has attracted your attention is strictly true, yet it may produce an impression that the crop is much better than it really is. I still consider it the best field of wheat I have ever harvested, yet if it yields an average of 20 bushels to the acre it will be quite as much as I expect. You will see, therefore, that I have not been a very successful wheat grower. I have heard of, but have never seen, 40 bushel crops, and in 40 years' experience I doubt my having ever seen 10 acres which have yielded 40 bus. to the acre. This crop and that which preceded it on the same field has confirmed my opinion that a soluble phosphate of lime, ready for plant food, is what our soils most need for the production of wheat.

You may remember that more than a year ago I promised to furnish for publication my experience in pursuit of phosphates, and especially with the phosphate rock of South Carolina. This I will try to do in time for your August issue, as I think that an experience of more than 30 years in pursuit of this most useful fertilizer may be of some service to your readers.

But to the crop of which you enquire. This was the sixth successive crop taken from the field—a field, too, which is considered the poorest on the farm. This is their order: 1, corn; 2, wheat and oats; 3, oats and hay; 4, corn; 5, wheat; 6, wheat. The four first were without fertilizers or manure of any kind. On the two last, fertilizers, especially phosphates, were liberally but not lavishly used.

In the winter and spring of 1871 a portion of the field was double or trench ploughed, with a No. 6 Livingston plough and three strong horses, followed in the same furrow by a Watt plough, and two steady mules. The land was broken 14 inches, but the soil not subverted to that depth. It was by far the best ploughing I have ever had or seen done, and if time and team had permitted it would have been continued over the whole field. In the fall of 1871 the whole area of about 70 acres was sown in wheat after corn, when 4 tons of plaster, $\frac{1}{2}$ a ton of Peruvian guano, 3 tons of dissolved, and 3 tons of undissolved phosphate rock, were applied, partly broadcast and partly with the drill. These fertilizers, at the then ruling prices would have cost \$225, or rather over \$3 per acre. My figures are accurate as to the Peruvian guano and dissolved phosphate. There may have been more plaster and undissolved rock, but the whole could not have reached \$3.50 per acre. The best wheat was from South Carolina phosphate rock, ground and dissolved at my own mill; 2d best, from undissolved South Carolina phosphate rock and Peruvian guano; 3d,

from dissolved South Carolina phosphate rock, bought of Ober & Sons, and on the rest of the field I used a mixture of undissolved South Carolina phosphate and plaster, with little if any apparent benefit. You will observe that from 300 to 400 pounds to the acre were applied.

The summer of 1872, when the wheat stubble was fallowed, was very dry and the land infamously ploughed, scarce half broken and in clods upon which the heaviest harrow had no effect. No implement known to me, but Crockill's clod crusher would have put the field in order, and that I did not have. I finally resorted to a heavy log, drawn by six oxen, and with this primitive but effective implement most of the field was made smooth enough for the drill.

On all the land where the drill could be used I applied the fertilizer at from 200 to 225 pounds to the acre. This was done with very great accuracy when drilled. When the wheat and fertilizers had to be sown broadcast, the same accuracy could not be attained. About one and a half bushels of wheat were sown to the acre. Some few head lands were cross drilled without altering the gauge, thus giving 400 lbs. fertilizer and 3 bushels of wheat to the acre, and these headlands did not appear to be too thick, and I intend to repeat this experiment on a square of 100 or more yards.

The whole field was sown from the 5th to the 17th of October. The varieties of wheat used were: 1, Boughton; 2, a beautiful white wheat, called Italian, about six days earlier than the Boughton or Tappahannock; and 3, an amber wheat, bought in Richmond, name unknown, just three days earlier than the Boughton. Both these last wheats are beardless, and I think are likely to prove useful varieties. As the crop is unthreshed, I cannot report its yield.

Whilst I do not claim to have made a very heavy crop, the result is altogether satisfactory, and demonstrates, I think most conclusively, the necessity of phosphatic manures for successful wheat growing. Of this, however, I have for years been fully convinced.

The fertilizer used was prepared by Mr. Sangston, of the Maryland Fertilizing Company, from a formula furnished by myself. It varies but little from (and I am not disposed to claim for it any superiority over) the regular Maryland Fertilizer of that company. At the suggestion of Mr. Sangston, one ton of this last was used, with an effect quite equal but by no means superior to that of my own formula. This happened to be used on the land fertilized last year with the South Carolina phosphate rock, dissolved by myself. The area for wheat was reduced to about 60 acres, some 8 or 10 acres having been sown in winter oats. Upon this I used 6 tons of fertilizer, at a cost of about \$50 per ton, or about \$5 to the acre.

On the crop to be sown this fall, which will not exceed 60 or 70 acres, I shall use the South Carolina phosphate rock, dissolved, with little if any addition of any kind, cer-

tainly without Peruvian guano, as I consider the ammonia from that source as too costly for its benefits.

I am convinced that with a liberal use of phosphates, and peas or buckwheat to be sown and ploughed under after harvest, the same field may be repeated in wheat with an annually increasing crop, and I intend to try it on the field which goes in wheat this year, and if the experiment succeeds, it will be of very great value to our farmers. This is too obvious to need demonstration.

The phosphatic rock of South Carolina, without an acid to dissolve it, is inert and almost valueless; when dissolved, it affords an inexhaustable supply of the best wheat food, and is far more valuable than a similar deposit of the best Peruvian guano would be.

Very respectfully yours, JOHN WILLIS.
Oakburn, Orange Co., Va., July 13, 1873.

Home-made Fertilizers for Wheat.

Messrs. Editors *American Farmer*:

Upon my wheat crop this season, my phosphates gave great satisfaction, producing for me double the amount of wheat which would have been produced had I not used them. On a poor part of one of my fields, which only gave me, without phosphate, five bushels per acre two years ago, this season, with my own manipulated phosphate, gave me fifteen bushels. I used no phosphates last fall save my own, being satisfied with their effects upon my wheat last year. They produced me a hundred per cent. increase over wheat seeded without phosphates, and seventy-five per cent. over city made phosphates which I used. This year I think it has acted equally well. I shall change my formula slightly this season. I think the more concentrated these manures are, the better; it is useless to apply inert bodies to the soil; these are sometimes added to increase the bulk of mixtures, and we have to pay as much for them as if they were composed of the purest salts of ammonia, potash, soda and phosphoric acid. Magnesian salts, used in my mixture last year, I shall dispense with this, owing to the fact that stone lime, rich in magnesia, has been recently applied to my lands. Plaster I shall also dispense with, owing to the fact that I expect to have the use of machinery in making my mixture, which will enable me to dry my dissolved bones without its use. Plaster acts well upon clover, but is of little importance to the growth of wheat.

I shall also substitute Peruvian guano for the sulphate of ammonia used in my mixture last year, because I find it difficult to obtain the sulphate of ammonia free from objectionable impurities. Hence my mixture this season will be—

| | |
|----------------------|----------|
| Muriate potash | 300 lbs. |
| Nitrate soda | 80 " |
| Peruvian guano | 350 " |
| Common salt | 70 " |
| Dissolved bone | 1200 " |

Per ton.2000 "

I consider this mixture as near perfect as I am capable of compounding it, and look forward to good results from its use. It is quite an expensive mixture, costing me fifty-five dollars per ton, when mixed and bagged. I shall make a small amount over what I shall use myself, and if any of your subscribers would like to try it, I can furnish them at sixty dollars per ton, delivered on board at Baltimore. My compounds have acted so well on my own lands, that I would like to see them tried elsewhere. I find making these mixtures on the farm to be very laborious, and the difficulty of getting the ingredients thoroughly incorporated very great.—Farmers should club together in every county and build phosphate mills; by so doing, a large amount of money would be kept at home. This fertilizer trade is becoming immense; it drains more money from the rural districts than any other. Why not keep the profits on the manufacture of phosphates at home? At present, nearly half the wheat crop goes to the large cities to pay fertilizer bills. Can we wonder at there being no money in the country when so vast an amount is absorbed by the capitalists of the large towns, by them invested in stocks, &c., to lay dormant, so far as the ruralist is concerned?

I must return to you many thanks for the Hudson prolific corn which you sent to me. I planted it on land alongside of some other corn, without manure, so as to test its real worth. So far, it has made a finer growth, and I think will come into silk several days in advance of my general crop. My Fultz wheat proved a great success this year. I seeded last fall on stony land one peck, at the rate of about one bushel per acre; phosphated at the rate of two hundred pounds per acre, and cut six and a half bushels clean wheat. The wheat produced was totally different from the seed sown, being an amber in color, whilst the seed from which it came was a deep red. This wheat stood the winter better than any other which I had sown; has a very stiff straw, and branched under my thin sowing extensively.

The wheat crop here is rather more than an average one. The hot sun in June dried some fields up before they fully matured, but as a general thing, the grain is good and bright. Corn looks badly—much damaged by insects; a good stand has not been obtained, and the crop must be short in this county, rain or no rain. It is drier than at this time last year. Yours respectfully,

EDW'D B. EMORY.

Queen Anne's Co., Md., July 14, 1873.

A Cheap and Rapid Way to Reclaim Worn-Out Lands.

To the Editors of the *American Farmer*:

Here in Eastern Virginia it is of vast importance that our worn out and exhausted lands should be reclaimed and put into cultivation as rapidly as practicable. This cannot be done by simple manuring to much ex-

tent. Clovering is the thing, but how to make the clover grow upon poor land is the key to the situation. The cheapest, most practical, and most rapid plan, in the estimation of this writer, who has tested it, is this:—

First get the land up and put it in corn—using about 200 lbs of some good fertilizer on it—a part of it to be applied in the hill at the time of planting, and the balance applied broadcast and ploughed in at the last working of the corn. The next spring succeeding, flush the land up with a two horse plough and seed it in oats—using about 200 lbs. more of some good fertilizer. After the oats have been seeded, sow about one gallon of clover seed per acre on the land, and harrow them in with a light harrow, or run a heavy brush over it.

The advantages are: In the first place every seed will come up and very quickly; 2, you will be sure to get a good stand, and 3, the soil being freshly ploughed, the young clover will take root quickly and grow off rapidly.

Last spring, the writer of this succeeded in this way, in getting a fine stand of clover on nearly the whole of his oat land, and made a fine crop of oats besides.

On a part of the land, the clover seed were not harrowed in—but on that portion where they were, the seed came up sooner and better.

I never saw a finer crop of young clover than that now growing on some corn land on which a previous application of fertilizers had been made on the corn. The fertilizer used was Gilham's Old Dominion, a preparation made expressly for wheat, corn and oats.

WM. HOLMAN.

Cartersville, Va., July 18, 1873.

“What Shall We Do?”

To the Editors of the American Farmer:

I am of the opinion both you and the numerous readers of your most excellent *Farmer* have good reasons for congratulating your able contributor, the Hon. Willoughby Newton, upon his great success in arousing the numerous contributors to the *Farmer* upon his most thrilling query, “what shall we do?” It is one of the oldest and most momentous queries ever made by man; it has been made and used by millions long since slumbering in their tombs, and it will again be made and plaintively uttered in bitter tears by untold millions yet to be born; and throughout an endless eternity will the lost wailingly, most deeply, deplore, in bitter anguish, their not having better heeded the query, whilst the redeemed will shout forth their plaudits: we heard, we believed, and we obeyed.

These four little words, composed of only thirteen letters, used in the sense I apprehend our esteemed friend intended, was to us of our then almost ruined South, like the great canopy of heaven, charitably covering and feelingly and fully embracing each and all, of every grade and class and color; the great and small, the rich and the poor, the white and the black, and the good and the bad,

were all most feelingly appealed to. Then our whole country was feebly struggling in its trembling efforts for existence. Help! help! was the agonizing cry, mournfully heard all over our land, when Mr. N. wrote those thrilling words, “what shall we do?” which at once aroused our best men and women of every grade and class, in whatever sphere their lots were cast, to come forth and help the best they could to answer it. How truly gratifying, my dear sirs, to you, to him, and to our whole country, to see the prompt, spirited and able response of so many, doing their very best to fully represent each their portion of our vast vineyard, of which they were but mere humble members. And Mr. N. has well, ably and faithfully discharged his whole duty. None could have performed it better, and for one, I most sincerely thank him.

Let any impartial man take up any one of the last twelve numbers of the *American Farmer* and closely and carefully examine each and every department with which it is so richly laden, and I am sure he must say your people have done well. The very high position the *Farmer* so justly occupies over such a vast extent of our common country, and the deep, genuine anxiety with which every one of its numerous subscribers looks for its prompt monthly visit, speak too plainly for any comments of the good part you and your contributors have so well performed. But, my dear sirs, whilst we all are thus well pleased with its cheering success, does it not behoove us to thank our God, and well to remember, whilst there is an absolute necessity for bolts and bars and 20 and 40-penny nails in building our commodious and comfortable houses, the little 4-penny nails are equally as necessary for protecting and covering the whole building—the failure in the well doing of which is oftener complained of by our good wives than any other or all other parts put together. Then whilst our esteemed friend, Mr. N., has been so ably instructing our statesmen, and I fondly hope making some good, honest ones out of your many readers of the *Farmer*, (of whom our country now stands so much in need,) won't you and he and your numerous readers please excuse my little 4-penny production for raising its feeble little voice, crying out of the wilderness, for the good of all the oppressed, *all who can, pay as you go*, and those who unfortunately can't fully do so, come as near it as you can, and diligently struggle on, and you will soon fully accomplish it; for this little rule has made me think more closely, and work more diligently, than any other stimulant I have been able to apply to myself since the war, and I apprehend will equally apply to all who will diligently try it; and after becoming pretty well used to it, I find it a very tidy, pleasant, wholesome and invigorating little dish, which every family can so well and easily prepare for themselves, and will serve to nourish and strengthen us so much the better for the big, rich, stronger

State or Federal dish, for which Mr. N. is so ably struggling. My little dish can and should be prepared daily, and upon it we will daily strengthen and grow, and upon it alone we can become quite independent and happy, whilst Mr. N.'s big dish must necessarily take a long, long, very long time, if it ever comes at all; and many of us were then empty, naked and thirsty; the cry even now from many is, bread, a home, a refuge from coming ruin. My little dish will now save some and will help many, many more, and I greatly fear our esteemed friend's unwieldy dish may be too slow coming for a vast many much younger than he or I. Every line I have ever written for the *American Farmer* has been written to the best of my ability for the benefit of our oppressed people, and if in my humble little efforts I have thrown one ray of hope into one despondent heart, or rekindled the dying energies of any, I am well paid for all the efforts I have ever made. The great master wheel by which our fallen fortunes are again to be wheeled into their former prosperous position, is formed of many, many larger spokes, with a vast many more of smaller brace and supporting spokes, and every one producing any, even the least good, should be welcomed as a good and useful spoke.

That most deserving young lady, of whom you gave an account in your July number as having raised \$350 worth of eggs and chickens, was a beautiful bracing spoke in our great wheel. What a tender, winning stimulant that must have been to her good brothers, to lay aside their pipe and the glass and try their thrifter hands on potatoes and turnips, and on her father to do his best on more successful farming or stock raising.

Cheer, good cheer, confidence and brotherly love is what we of the South want; that invigorating diet does not grow anywhere so luxuriantly as on thrift, and he or she who has in aught succeeded in anything, from the little busy bee up to the mammoth ox, let them herald it through the *Farmer* to us all, for the good of all; and as I do well know, my "*p. y as you go*" has worked like a charm for me and mine and for those of my neighbors who have tested it in my community, which is about as thrifty as any part of my improving county, hence the reason why I wrote it, for I trust the benefit of at least the few who may be induced to try it. To answer the question, "*what shall we do!*" it is by no means necessary to heed the article with those words, nor to have them in the article at all. If that young lady had written a few lines, telling how she managed to raise the snug little sum of \$350 worth of eggs and chickens, it would have been a nice little sermon upon "*what shall we do?*"—and if the young ladies throughout our country would go and do likewise, it would be just so many effectual lectures on "*what shall we do?*"

A friend (a merchant) in a thriving little town of this county, last year, after tending his store and other business, so managed his

bees that the honey, after supplying his family, netted him over \$500, and his squabs several hundred. This was a practical answer on "*what shall we do?*" A freedman, with his hoe, made a crop of tobacco which netted him \$600. This was a powerful article on "*what shall we do?*" to those fellow-freedmen who are making some \$2 to \$50 and spending most of their time in catching catfish as big as tadpoles and attending speeches and elections. He who makes one acre of grass bring more than his neighbor's five or six acres, is doing much to solve the question, "*what shall we do?*" In a ride through the upper part of Albemarle, Nelson and Amherst counties, I was well satisfied my grass fields could preach those citizens a powerful sermon on what they should do. If my plan, *pay as you go*, had been commenced sooner, I should not now have many hundreds of dollars' worth of articles on my farm, for which I would gladly take half-price or barter them at almost any price for one of J. Marshall McCue's clippers or bush whackers. By-the-by, can't you stir up our friend, Mr. McCue? I should like to have one of them now. "*What shall we do?*" refers, I think, to making all and every improvement we can upon each and every article on which the welfare of man depends on earth and in eternity.

With best wishes, very truly your old friend,

GEO. C. GILMER.

Albemarle Co., Va., July, 1873.

The Duty of the Farmer.

To the Editors of the *American Farmer*:

I am under many obligations to your kindness in admitting my articles to the *Farmer*, and feel encouraged to go on in the good work which I have undertaken, and I hope that my labor in this direction will not be in vain. I will, however, here say, once for all, that I am by no means attempting to answer Mr. Newton's interrogative in his sense. His question, however, is broad and comprehensive, embracing many subjects of great importance to the farming public, and none more so than that to which I am calling attention. I have been for some time engaged in the study of Agricultural works, among which is the *Cultivator*, edited by the late Jesse Buel some thirty-five or forty years ago. Several of these volumes have, by good luck, come into my possession, upon which I place great value, and which I hold in the highest estimation. In reviewing these papers, I find Mr. Newton's question is by no means a new one, and does not exclusively pertain to our present condition and circumstances, in a special point of view, more than then, neither as regards the monetary system nor that which is essentially agricultural in its character. The very identical complaints made now were made then. So our condition, bad as it is, will compare favorably with that of those who were busy in mundane affairs near half a century ago. Judge Buel urged upon the

farmers of his day the great importance of bringing the land to the highest degree of fertility. He denounced in bold and manly terms the general system of agriculture then in vogue and showed beyond all question, that if persisted in, the most distressing results would follow. But did the people give heed to his wise and timely admonition? No! and the consequence is, the greater portion of the land is not worth cultivation. Then I assume that, to a considerable extent, much of our present distress is due to the miserable system of land culture which has come down to us from our ancestors. And still we persist and continue to make that worse which is already almost beyond cure. The necessities of our case impose upon us much hard labor, with little compensation. But who has entailed upon us the worn-out lands and barren fields, which expose to our view their bare, bald knolls, devoid of grass and herbage, but the miserable land-worker and land-skinner of past generations? In this case the sins of the fathers are visited upon the children, and will so continue to be visited until we cease to do evil, learn to do well, and leave to our children a far better legacy. Enough of this bad system do we see all around us, and far more do we most bitterly experience. What then is the grand necessity of the hour? What the imperative duty of every man owning a single rod of earth? It is "to plough deep while sluggards sleep, and you will have corn both to sell and to keep." It is to restore to the soil that fertility of which it has been deprived. It is to enrich the land until it will generously and in a seven fold manner respond to the toils of the faithful husbandman. Everywhere do we see the evidences, the marks and footprints of the fool and his folly, of the man who killed the goose that laid the golden egg. Without a speedy return to the practice of a proper agriculture, without we farm our lands with the view to their improvement and actually make it to return more to the soil than we take from it, depend upon it, delude ourselves as we may, hard labor and starvation will be our only just reward. The truth of the whole matter is, we cultivate the earth for the purpose of procuring the means of subsistence out of it, and for no other purpose, and we find law and order, principles, cause and effect, as elsewhere, and these must be practiced upon, must be observed, must be tried and tested, must be discovered and reduced to matters of fact by actual experiment, before we have any reason to expect that our labors will be crowned with abundant harvests and well stored barns.

Mr. Newton may be right in attributing the deplorable condition of the farming interest to the want of a good sound currency, but I am clearly of the opinion that the poor land we are compelled to work, and the bad system of general farming, is the legitimate cause of all. And I ask the question, how can it be otherwise? If a man cultivates his land, year in and year out, without making any kind of returns to it in the form of a permanent

manure, proper culture and proper rest, how in the name of common sense can he expect to reap rich and abundant harvests or secure results corresponding to the amount of labor and capital invested? It is impossible, and in other departments of industry such a calculation would not exhibit evidences of a well regulated mind. The earth is endowed by its Creator with the power of furnishing food to plants and nutriment for their growth; it is however not ever-enduring. But Nature, however, who at all times abhors a vacuum, has in her economy made ample provisions for all the possible emergencies which may take place anywhere in all her wide domain, by a process not altogether unknown to the diligent and studious husbandman and farmer; she reinvigorates the exhausted powers of mother earth when the proper means are afforded for the accomplishment of the correspondent end in view. Here every man can enrich his land if he will, and he who refuses to do it, or fails to discharge this duty, which he owes to both God and man, cannot in any sense be considered either a good or wise man. And if in this particular we persist in violating the wise and beneficent laws of God in this part of his creation, and by the obligations imposed upon us by Him, fail in making ample provision for those to come after us, a just and merited punishment will overtake us sooner or later. And are we not tasting something of the bitter fruits of our doings now? The man who improves his land is a benefactor of the human race and a saint in Heaven's sight. And when the Master shall dispense his choicest blessings to the righteous, to these he will say, "Well done thou good and faithful servant, inasmuch as thou hast been faithful over a few things I will make thee a ruler over many things." W. H.

Culbert Co., Md., July 1st, 1873.

Vetches—The Fruit Crop.

To the Editors of the American Farmer:

I send you (as promised) a sample of vetches and oats cut in the flower; you will notice both flower at the same time. My horses and cows eat it with more than a tolerable relish—hogs greedily. We have an abundance of dogs, consequently no sheep. I find the vetch growing spontaneously on the margin of Herring Run; it is vulgarly called partridge pea. I sowed 24 bushels vetches and 1 bushel oats broadcast, per acre; I think 14 bushels vetches and 1 bushel oats an abundance. The cured vetch (a sample of which I send you) I find is a good substitute for common hay. Those who feed stock extensively, or when dry forage becomes exhausted, will find the vetch a valuable adjunct, either for soiling or tethering. The spring vetch flowers in about 75 days from the time of seeding, and the winter vetch I suppose will flower two weeks earlier. Cattle appear to relish the vetch better in the young state or previous to flowering.

My fruit report.—Peaches, none; Cherries, average per tree, 1 quart; Pears, two out of three barren—Bartlett, Seckel and Duchess very promising. Small fruit abundant.

Yours truly, PLOWMAN.
Baltimore Co., Md., July, 1873.

[We put before one of our cows the specimen sent us; after picking at the oats, she ate, not with great eagerness but rather deliberately, the Vetches. A horse to which we offered a handful of the Vetches declined them. Theirs are American tastes, or perhaps they consider themselves used to better things! The samples, however, were hardly enough for a fair test.—Eds. A. F.]

Crop Prospects.

To the Editors of the American Farmer:

Since the latter half of June up to the present writing we have had copious rains, wet days and refreshing showers, and our rural districts and surroundings have assumed a bright and cheering aspect. Our wheat crop, although believed to be somewhat under the average yield, is of fine quality, and has just been harvested in good order, the late wet weather not having injured the grain. Corn is making vigorous growth—stands well—and the prospect for an abundant crop never was better. Much tobacco has been planted and is growing off finely.

The crop of spring oats, now near maturity, surpasses any prospect within our recollection; and timothy meadows have very heavy crops now ready for harvesting. Our garden products are coming in finely, but we have to fight the grass and weeds vigorously, and expend "horticultural sweat" profusely, or lose the advantages of the fine season. Are we not indebted for this prosperous condition of vegetation to the fact, that the constituent elements of plant food, not having been expended last year, in consequence of drought, have aided the present season in giving *double growth* to all vegetation, including the cereals, fruit trees, grasses and weeds?

As regards the fruit crop, the season, so far, is propitious. Apples are coming in, and the specimens are large and perfect. The "Early Harvest" with me, especially fine. The peach crop will be abundant, although somewhat thinned by the frosts of the 18th and 26th of April. This fruit has the promise of being unusually large and fine. Much attention is being paid to fruit, for which our fine climate and soil is just the thing.

In view of this prosperous state of affairs in aid of our recuperative energies, we hope to realize a degree of prosperity unknown to our good old commonwealth since the devastations of the late war. J. FITZ.

Kennick, Central Va., July 7, 1873.

[In type, crowded out of this No., report of June meeting of Washington Co. (Md.) Farmers' Club.

Live Stock.

SHROPSHIRE SHEEP FOR SALE.—In one of our numbers of last year we referred at considerable length to this breed of sheep, and noticed the fine flock owned by Henry Carroll, Esq., of Baltimore County, in this State. This gentleman has been very unfortunate with this flock on account of the ravages by dogs. Lately he met with the additional loss in the same way of a fine imported ram and three ewes. So much discouraged by these repeated disasters, and seeing no probability of immunity in the future, Mr. C. has determined to discontinue this branch of his farm operations, and will sell his remaining sheep, which are all of a superior character, at a very reasonable rate. To persons desirous of engaging in breeding this race of sheep, the opportunity offered of getting some fine specimens is an unusually good one.

Origin of the Duchess Short-Horns.

T. R. Jameson, in a recent address at the University of Aberdeen, Scotland, thus describes the origin of this famous strain of cattle:—

Thomas Bates seems to have selected his Duchess tribe on account of their combining great milking powers with an aptitude to fatten readily. I believe Bates is generally considered to have been a trustworthy man in his statements, and correct in his facts, although many thought he had an overweening opinion of his own stock. He tells us that his first Duchess cow, which he bought from Chas. Colling, gave seven gallons of milk per day, namely, fourteen quarts each milking, the practice being to milk only twice a day, morning and night, and the milk yielded eighteen imperial pounds of butter in a week. He never had a cow that to his knowledge gave more than this. This same cow was the dam of the bull Ketton, a very fine animal and an excellent sire.

As the Duchess tribe have become so famous and sells at such enormous prices, I may here give a few particulars regarding it. The first of the family we hear anything of was bought by Chas. Colling from the Duke of Northumberland's agent at Stanwick, in 1784, for the modest sum of thirteen pounds sterling. She was a massive, short-legged cow, of a yellowish red color, with the breast near the ground. She had a white back, and was a great grower. Colling called her Duchess and had often described her to Bates as a very superior animal, particularly in her handling; and told him that he considered her the best cow he had ever seen, but that he could not breed such a good one from her. She was descended from

the old stock of Sir Hugh Smithson, of Stanwick. Thomas Bates bought from Colling one of the descendants of his cow in 1804, for 100 guineas, being the same I have mentioned as being such a fine dairy animal, and he bought another at Colling's sale in 1810. For the latter he paid 183 guineas, and styled her *Duchess 1st*; and from her all the present family descended. Bates tells us that he was induced to select this tribe from having found that they were great growers, quick feeders, with fine qualities of meat, consuming little feed in proportion to the progress they made, and also from finding that they were equally remarkable as great milkers. Bates asserts that the tribe improved under his care in regard both to growth, aptitude to fatten and small consumption of food; but admitted they gave less milk than the first cow of the tribe which he bought from Colling in 1804, although what they did give was richer in butter. I have seen no statement of the actual produce in milk from any of them, except the first one in 1804, and am unable to state to what extent the present Duchesses excel as dairy cows.

We may readily allow that Bates improved the breed in regard to form and aptitude to fatten, for several of those he produced, especially after the cross between *Belvidere*, were remarkably fine animals; and at the first show of the Royal Agricultural Society of England, which took place at Oxford in 1839, he carried off all the prizes in the Short-Horn class, except one, for which he had not an animal present. Bates' herd was sold off in 1850, shortly after his death, and the animals were dispersed, and fell into various hands. Some of the best of the *Duchess* tribe were bought by Lord Ducie; and when that nobleman's herd came to the hammer in 1852, the Americans carried off several of the choicest, at great prices. At the present time, I believe, Col. Gunther's herd contains the purest representatives in England, and his *Duchess 77th* well maintained the fame of the breed by beating all others at Leeds and elsewhere, carrying off no less than nineteen prizes and seven challenge cups; but the Col., having experienced some of the evils resulting from the state of fatness in which it is necessary to bring out the animals at these shows, I believe wisely declines to exhibit.

Principles of Breeding.

We extract the following from the address of Prof. W. W. Daniels, of the Agricultural University of Wisconsin, delivered before the recent Northwestern Dairymen's Association, at Elgin, Illinois:

There is a tendency to inherit the traits of both parents, and no animal should be used for breeding purposes that has strongly marked traits that are not desirable.

It is necessary in all cases where a high standard of breeding would be reached, to follow a rigorous system of "weeding out" or

rejecting all animals not up to the desired standard. This is the method followed by all breeders of excellent herds, and it is the only method of obtaining excellence.

Physiologists long since recognized the fact that the male used in the first impregnation of a female influenced the progeny of the mother by succeeding males.

Mares that were first bred to an ass, when afterwards only bred to a horse, bore offspring for several generations having much the appearance of mules.

Of the most striking examples on record of the effect of the first impregnation, is that of Lord Moreton's mare, first bred to a quagga, a species of wild ass striped somewhat like the zebra. The mare was nearly pure bred Arabian, of a chestnut color. After bearing the hybrid quagga, she was bred for two years to a black Arabian horse. Both the foals were striped, and had the short, stiff, upright hair of the quagga, although in form they were Arabian. Hornless cows when first bred to a horned bull, often afterwards bear horned calves by a hornless bull. Mr. Giles put a sow of Lord Western's black and white Essex breed to a wild boar of a deep chestnut color. The offspring of this union partook of the color of both parents, although in some the chestnut color prevailed. - Long after the death of the wild boar the sow was put to a boar of her own black and white breed, and among the offspring of this union were pigs strongly marked with the chestnut color of the first litter.

Different explanations of this remarkable phenomenon have been given. Some believe that at the time of the first impregnation the imagination of the mother is very active and that she receives at the time mental impressions that affect her at later impregnations.

Others claim that the system of the mother absorbs from the embryo some of its peculiarities during the period of gestation, and thus she will bear in her blood some of the constitutional elements and peculiarities of the male.

There is known to be an intimate sympathy between all the organs of reproduction, and hence some physiologists have supposed that the ovaries in which the germs to be afterward developed into being, are maturing, may be affected in some unknown manner during the progress of gestation in the womb.

Our knowledge of this subject must be greatly increased by observation and the accumulation of facts, before the question of cause can be decided with certainty.

But that the first impregnation does affect succeeding progeny is well established. In practice, then, the rule to follow is made plain. Never fail to use an excellent male at the first impregnation.

THE LINCOLN SHEEP.—The Lincoln breeders consider the mutton of superior quality, having less fat and a greater proportion of fine grained lean flesh than the Leicesters. The ewes are good breeders, but are said to be in different sucklers, as indeed is too frequently

the case with ewes of either the Cotswold or Leicester breed. Lincoln wool is much esteemed for its peculiar properties of length, strength, lustre and brightness, placing it in the front rank of what is well known to sheep farmers as "combing wools." Lincoln wools enter largely into the manufacture of "alpaca," "cobourgs," and various fabrics composed of cotton and wool mixtures; and the "gloss" which is given by this description of wool meets with such unqualified admiration as to have become a rage and fashion for both gentlemen's garments and ladies' dresses.—The product in thread or cloth from a fleece of wool is something astonishing. A 20 lbs. Lincoln fleece used as an admixture with cotton in the finest alpaca fabrics suffices for upwards of twelve "pieces" of 42 yards in length, or a total of 672 yards, 3 feet wide; and sixty years ago, a Miss Ives, at Spalding, spun 168,000 yards or about 95½ miles of woollen thread from a pound of wool of a Lincoln ewe.

Horticulture.

The Fruit Crop.

The past winter was undoubtedly one of the severest felt for many years, in its effects upon the larger Fruits of every description. We seldom find in any of the accounts received, of the escape of the Peach, with the exception of the crop in Delaware, where it is estimated that the yield will be half as good as usual. We regret to learn, from Col. Wilkins, of Kent Co., Md., of whose large orchards of very superior peaches we have heretofore had occasion to speak, that his loss of this crop will be almost entire, from the effects of the past winter's cold, and the ravages of the Curculio. The Col. writes us as follows:—"I regret to say that the Beatrice Peach have all fallen from the sting of the Curculio; indeed between the Curculio and Jack Frost, nearly all of our Peaches of every variety are gone."

The injury appears to be almost universal, so far as the Peach is concerned. Other fruits were affected, but only to a limited extent, and the smaller varieties have generally been abundant.

Mr. J. B. Garber, of Columbia, Pa., in a letter to the Germantown Telegraph, says that he has for years been making a collection of the best varieties of the Persimmon, and that trees over thirty years old, and forty feet high, have been so largely frozen that they are now just putting out a few sickly looking leaves here and there. Smaller trees have

been frozen down to the ground, and are now throwing out vigorous shoots from the roots. He has several varieties that are called seedless, though they have a few seeds, and one very large-fruited variety from Maryland, some of the fruit measuring over five inches in diameter. The California variety of this fruit were all killed, and he thinks that the large varieties will not stand this climate.—South of Baltimore he thinks they would be hardy. In January, 1895, he says, "the thermometer fell as low as last winter, each time to 22 degrees below zero. Then peach trees, sweet cherry, and many plum and pear trees were killed to the ground, and apple trees much injured. This last winter peach trees merely had all their flower-buds killed, and did not flower, while the trees are nearly all safe and growing vigorously. Cherry trees the same. Pear and apple trees appear not to have suffered in the least and flowered pretty full, still the fruit is now dropping off. Quince trees all dead to the ground. Grape vines not covered are nearly all dead to the roots. The only exception with me is the Franklin and some of its seedlings. Large vines of Concord, Isabella, Diana, even Fox and Frost grapes, all dead to the roots, now throwing out strong shoots from the ground. Fortunately I had all my new or rare and choice varieties covered with refuse hay, and a foot of snow on top of it, so these are all safe and growing finely. The 'Telegraph' was among those covered and is now showing fruit profusely. Have several of Dr. Wylie's of South Carolina, that are showing fruit for the first time, with several others from other sources."

Mr. Garber says that many trees from Southern climates have resisted cold, while some of the natives were injured—among them he names the "Magnolia macrophylla, the *salisburya adiantifolia*, or Japan jingo tree, the *virgilia lutea*, or yellow wood—not in the least injured; while persimmon, quince, spice-wood, wild fox and frost grapes dead! Japan arbovitæ safe, Chinese arbovitæ dead. Pecan and Osage orange, large trees uninjured! I might extend this list, but will stop."

PEAR BLIGHT.—Mr. G. F. B. Leighton, of Norfolk, Va., wrote to the Commissioner of Agriculture, asking what remedy be recommended for this disastrous plague. The following reply was made by Judge Watts:—

"When any large branch of a pear tree is attacked with blight, immediately wash the parts with carbolate of lime. Cloths may be bound around the limb, and saturated with a thick solution of carbolate of lime. Sulphur combined with the solution is good. Small branches, when attacked, should be removed.

"When a large and valuable branch is seriously affected by the blight (which may be known by using a knife) remove all the blighted bark without 'girdling' it, then coat with the mixture above mentioned. The department has saved some valuable trees by this

treatment. See article on this subject in monthly report for May and June, 1872, and another more thorough, which will appear in the annual report for 1872.

Yours respectfully,

FREDERICK WATTS, Commissioner."

The Norfolk Virginian, in publishing this letter adds:—

"In addition to the remedy advised by the Hon. Mr. Watts, we may mention that Mayor Ludlow has achieved great success in treating diseased fruit trees, pears among the number. His remedy is within reach of all classes, and consists of boiled linseed oil applied copiously to the affected parts. Some of the cures effected by him have been little less than marvellous, and we would advise a trial of both methods with a report of results to Mr. Watts."

NEW STRAWBERRY—Wm. Parry, of Cinnamon, N. J., has presented to the Journal of the Farm several clusters of a new strawberry, called the "Monarch of the West." It is represented as a fine looking berry of very large size; one of those examined measured five inches in circumference. The flesh is solid, the flavor exquisite, and the color a bright red, just such as is calculated to please the eye of fastidious purchasers. It is quite prolific, late ripening, and from its solidity well calculated for marketing purposes. The berries grow in clusters of from six to twelve, presenting a very rich and beautiful appearance. The stalk is a very strong one, and capable of bearing the heavy crop of fruit from the ground, a very important and desirable feature in sandy soil. Some of the leaves were five inches in length.

Mr. Parry speaks of it in terms of unqualified praise, and stated his intention to give it a preference over all others. An idea of the superiority of the "Monarch" will be gleaned from the fact that side by side with his finest Albany Seedlings, it commanded fifty cents per quart, while the Albany's were slow sale at fourteen.

Vegetable Garden—Work for Aug't.

Keep the weeds under, and the soil well stirred, and you will achieve as much success as is possible in this climate at this season. Of all varieties of edible vegetables the garden should now give an abundant supply.

Asparagus beds will profit by a good dressing of manure now, and should be hoed and kept free from weeds. *Beans* (Bush or Snap) may be still planted for winter use. Limas ought to be pinched when they get to the top of the poles, which ought not to be too high—6 or 8 feet is sufficient. *Beets*, *Carrots* and *Parsnips* ought to be kept clean and well hoed. It is time to set out the late *Celery*. The ground must be rich. Keep *Corn* clean. Hoe around *Cucumbers* till the vines cover the ground. *Egg plants* profit by frequent hoe-

ings and applications of liquid manure.—Pieces of boards or slates put under the fruit preserves it from rotting where it touches the ground. Cut *Herbs* as they come into bloom and dry in the shade. Pick off of the *Melon* vines such fruit as will not mature, and those that do will be improved by it. Put something under them to prevent them resting upon the ground. *Onions* when pulled should be dried before stowing away and then they should not be put in a close warm place.—*Sweet Potato* vines should not be allowed to take root. Keep the ground clean till it is covered. *Squashes* may be allowed to root at the joints of the vines. Be on the watch for the bug. Keep *Tomatoes* tied up to stakes or trellises, or let them run on brush, and look out for the destructive green worm. *Turnips* may be sown and *Ruta Bagas* thinned and worked. Dust with ashes or plaster as a guard against the fly.

The Poultry Yard.

A Varied Diet for Fowls.

There are no animals more omnivorous than fowls; fish, flesh, herbs and grains being devoured by them with equal relish. We say equal, for though they commonly pounce upon meat with greater avidity than upon grain, this is generally because it affords a rarity, and a flock kept for awhile almost entirely on animal food will show the same greed for a few handfuls of corn.

Now, those animals accustomed to use a varied diet should not be confined to an unvarying one. There are, indeed, some species which are naturally limited to one or a few kinds of food. Thus, cattle do well enough, although kept month after month on grass alone, and a tiger will thrive with nothing but lean meat upon his bill of fare. But with other animals, as with the human race, for instance, the case is different, for no person can maintain the highest efficiency when confined to one article of food. No matter how fond we may be of a particular dish, we lose relish for it when allowed nothing else for a number of consecutive meals, and the intense craving for variety indicates as its source something more than mere appetite. It gives evidence of real necessities of the system which are constantly varying with the changing circumstances of weather, employment, and other conditions.

The fondness for variety shown by fowls is as significant of real needs as we have found it to be in ourselves. In purveying for them, a judicious variety, selected from the three general divisions—*fresh vegetables*, *grain* and *animal food*—is at all seasons absolutely necessary for young and old, in order to make them perfectly thrifty. True, they will not starve on hard corn and water, neither will they pay a profit so kept.—*The Poultry World*.

CHARCOAL FOR POULTRY.—The benefit which fowls derive from eating charcoal is, I believe, acknowledged. The method of putting it before them is, however, not well understood. Pounded charcoal is not in the shape in which fowls usually find their food, and consequently is not very enticing to them. I have found that corn burnt on the cob, and the refuse—which consists almost entirely of the grains reduced to charcoal, and still retaining their perfect shape—placed before them, is greedily eaten by them, with a marked improvement in their health, as is shown by the brighter color of their combs, and their sooner producing a greater average of eggs to the flock than before.—*S. Rufus Mason in the Poultry World.*

Bees on a Small Scale.

There are many householders whose means will not enable them to buy a cow or to provide keeping for her were they in possession of one. But they may be equal to the purchase of a colony of bees and to provide hives for the swarms resulting therefrom. Bees, like other stock, require pasturage, but, unlike horses, cattle and sheep, they are free commoners, ranging at will in search of stores, nor can they be arrested and punished for their intrusion upon premises alien to their owners. A single colony of bees, in good condition in the spring, may be counted upon to double or triple their numbers in a single season, securing ample stores for winter consumption, while supplying a gratifying surplus each autumn for household uses. This accumulation will prove most acceptable in families, especially while the price of butter rules so high as to place it beyond the reach of those not blest with elongated and plethoric purses. Try a colony of bees as an experiment.—*Farmer's Union.*

THE COTTON CROP.—The report from the Agricultural Bureau, for July, indicates that, owing to causes before reported the crop is generally from two to four weeks late. Throughout the cotton States the weather was unprecedentedly wet for a period varying from twenty-five to thirty-five days, ending about the 25th of June. The Report adds:

"The area of cotton planted was sufficient to tax the available labor to the utmost under the most favorable circumstances. Consequently the excessively wet weather preventing work and stimulating grass and weeds, has not only caused poor stands and a grassy and otherwise unfavorable condition quite generally, but has necessitated abandonment of large portions of the area planted, probably nearly enough to bring the acreage down to what it was last year.

The average condition of the cotton States made up from all the counties reported, was 89.05."

The Dairy.

Co-operative Dairy System.

For some years past our anxious desire has been to see introduced into the Middle and near Atlantic States, the system of Cheese and Butter Dairying, which has advanced to such vast proportions in the Northern and Western States. We have heretofore given the history of the rise and success of this system in New York, occasioned by the loss of the wheat crop for several successive years, by the ravages of the midge, which required the culture of that great cereal crop to be suspended for a time in the finest agricultural districts of that State; attention was largely turned to dairying in this time of their great trouble, and the old plan of household production was continued, but on a more extended scale than had been the case theretofore—this, however, was soon superceded in some neighborhoods by the introduction of the co-operative system, the complete success of which soon extended into other districts and states, until now the produce of the Dairy has become one of the most important of our exportations, exceeding in value, it is said, at the port of New York, that of grain. This may be an exaggeration, perhaps, but the increase of this industry is worthy of particular attention, from its rapidity, and shows to us that other resources recommended for our national prosperity, now opening to us, in the Silk, Wine and Beet Sugar manufacture, are not to be despised because of their present small beginnings. The editor of one of the N. York dailies, in allusion to this vast increase in the dairy business, occasioned by the opening of an Exchange for the dealers in the product, makes the following pertinent remarks, which we commend to the attention of our readers:

"The developments of our railroad, our iron, or wool, or cotton manufacturing interests are all just sources of pride, but here is an industry which silently and rapidly has grown to proportions, in a financial as well as social view, greater than any of those interests which have required so much legislation and so much of the attention of politicians to sustain. And this industry, in which more than \$500,000,000 of capital is invested, which furnishes more than 50,000,000 pounds of the most nutritious food to foreign nations, and at home and abroad yields, at the least estimate, food of the full value of \$400,000,000,

was but a few years ago a scattered dribble, and was brought to its present vast proportions not by the formation of great companies in Wall street, with immense capital, but by the harmonious association together of honest farmers. Never before in the history of the world has there been a more striking illustration of the old fable of the bundle of sticks.

"Not alone in a commercial point does the great dairy interest of our country afford food for thought, its expanse may be also viewed in a geographical and climatic direction. For years it was thought that only special sections could produce the food necessary for the production of good butter and cheese, but one after another factories have sprung up all over the West, until in prospect we may safely suppose a rival for Vermont and New York in Kansas, Minnesota, or Wisconsin. They have already arrested the westward tide of dairy products, and turned it toward the craving mouths of the needy poor beyond the ocean. When they shall be able to produce not only more than their own supply, but a surplus for a market, will arise with them the same question of transportation which now lessens the profits of their grain product. At the same time the progress of city extension and the increase of a non-productive but food-consuming population may make so great a demand for the milk in its crude state, that the now busy cheese-factories of Herkimer and Chemung will have to close their doors. Hence it may be that the future will find that the great and increasing demand of foreign countries for our cheese will be supplied from west of the great lakes and beyond the Mississippi. Every year has witnessed the slow but sure progress of some such change as we indicate. The farmers in Ulster, who, a few years ago, made cheese and butter, cannot afford to do so now, because it is less profitable than selling his milk at three cents per quart. As one after another of the railroad lines radiate out from the city centres, other dairy-farming sections will be brought into rapid communication with the consumer in the metropolis; that consumer not only demands that the 75,000 quarts of water which he now pays for shall be replaced by pure milk, but the amount he consumes is every day increasing."

A WESTERN MAN IN SOUTH CAROLINA.—We commend the following to the consideration of such of our Northern men who desire to "go West." With a small amount of capital, an industrious man who is accustomed to work and is not afraid of it, would be benefited far more than he could possibly be in going West, if he would turn his steps to the South. The letter is to the *Aiken (S. C.) Journal*, from Mr. Geo. Willard of that vicinity, and tells its own tale:

I will endeavor to reply to your request in regard to producing cotton here. In the first

place, we have as good a climate as there is in the world; the soil is poor, but realizes the effect of manure remarkably quick. I came here from Michigan four years ago last April. Really I could not see how a man could make a living here, but I was willing to try, for the reason that I could not live in Michigan on account of the asthma. I suffered all that is possible for man to suffer; now here I scarce have it at all. Last April I planted 19 acres in cotton on land that I had been trying to improve. Every year the yield is 22,425 pounds of seed cotton. You may say that is no great thing. True, it is not, but some of my neighbors have done much better. My near neighbor produced eight bales of 450 pounds on nine acres; another neighbor on 22 acres produced 27 bales of 450; another, Mr. Fitch, had nearly one bale to the acre. Now you will say that is no great thing either. Now Doctor, you must understand that this same land four years ago would not produce more than one-fourth of one bale to the acre. The commercial fertilizers that I used cost \$200; one ton of Raw Bone made in compost with cotton seed and stable manure was superior to the others. Lime did pretty well, but stable manure is much the best, you know. We are not hindered here all winter from hauling leaves and other trash from the woods, and of that there is a great abundance, as you know. There is only a small portion of the country yet improved. Now I have not a doubt that by making the most of our resources, we can in a few years make our land produce double what it does now. It becomes every man to remove every obstruction, and then plough deep, and manure deep. It does not become any man to purchase a large farm unless he has large means. No one need expect to win here in farming without perseverance. But by close application to business, with a little capital, he can win. Our help is reasonably good. There is not a more quiet place in the world, and I think more healthy. There are large numbers who resort here every winter for their health, and very many are benefitted.

GEORGE WILLARD.

WORTHLESS MANURES.—The N. C. Agricultural Journal, reports the trial in Raleigh, of a case in the U. S. Court, interesting to farmers:—

"One of the leading merchants of Raleigh, purchased from a Guano Company, in Baltimore, 17 tons of their article. It was ordered for a farmer who applied it to his crops, and finding no good results upon his crop, afterwards had it subjected to analyses at the hands of Prof. Liebig, of Baltimore, and Prof. Kerr, of this city. At the trial the evidence of the planter and the analysis of both of these gentlemen were produced, and the fact was established that the article contained 68 per cent. of sand. The fact was established by Prof. Liebig that the article was of no value whatever as a manure. And in spite of the evidence the court and jury decided the guano must be paid for."

The American Farmer

AND

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BALTIMORE, MD., AUGUST 1, 1873.

A REQUEST.—Will our friends remember to say a reasonable word for the *Farmer* whenever an opportunity affords. No neighborhood but gives ample opportunity for the much wider circulation of our journal, and if our present subscribers will take the trouble to commend it to the attention of their friends and neighbours, we have no doubt our list will be increased not only to the benefit of the paper, but also, we may add, in many cases, we believe, to the advantage of their own neighborhoods.

COL. WILLIS' WHEAT CROP.—Having noticed in a Virginia paper, the result of the wheat crop of Col. John Willis, of Orange Co., Va., in answer to our request for the particulars of his mode of cultivation, &c. he has kindly and promptly responded, and we have the pleasure of presenting his very satisfactory communication in this month's *Farmer*. The Col., it will be seen, gives the result of his experience on several points of importance which have been before our readers of late. We consider his contribution as very valuable at the present time, when farmers will be

turning their attention to the necessary preparation for their next wheat crop.

By the way, we would here make the request which we intended to present elsewhere, and which is anticipated in part by Col. Willis and also by Mr Emory and others—that in time for our next No. our correspondents would give us the results of their trials of the various varieties of wheat raised this season—this will be of much importance to many who may wish to change their seed, and to get the best in their selection; and whilst writing upon this point, we would be glad to hear of the result of the small grain and hay harvest, and the prospect for the Tobacco, Cotton, Corn and other crops. The recommendation of the Washington Co., Md., Club upon this subject, should be universally adopted—there is such a disposition to exaggerate in some quarters, and to underrate in others, for interested purposes, that it seems almost impossible to get any statement which can be deemed reliable except for the immediate locality to which reference is generally made. If the course recommended by the Club is pursued, the true state of the case in each county, and in every State, may the more readily be determined.

MR. EMORY'S LETTER.—The very acceptable letter of Mr. Emory, of Queen Anne's Co., Md., will be read with interest. Mr. E. is one of those young farmers who has taken hold of his profession with a well directed zeal, and he is sure to go ahead. The formula for a wheat fertilizer he has adopted for his future use, is one which embraces every requisite required for his cropping, and his suggestions to his brother farmers are worthy of their consideration.

MR. HOLMAN'S LETTER is short, pithy and to the point—the hints he throws out for the adoption of those who wish to improve their worn-out lands, at the cheapest rate, will be found suitable to the condition and resources of the most of farmers. We hope Mr. H. will continue to favor us with his experience and observation upon the same subject.

MR. WHITE'S PAPER on Tobacco Culture in New England, the 7th No. of which we give this month, will be read with profit, as no doubt the preceding ones have been.—There is a wakening up on the subject of raising this crop, and we think these papers will be found very useful as references to guide the planter in the careful handling and thorough culture of this important crop.

Other communications of peculiar interest will be found in this month's *Farmer*, which we commend to the reader as worthy their attention, but to which we cannot more particularly refer.

The Crops.

At this season of the year, there is always a feverish anxiety about the crops, and the attempt is frequently made to give such a gloss to the accounts given to the public, as is most likely to suit the interests of those furnishing the information. Every newspaper in the country is publishing extracts upon the subject, but generally these are unreliable, except in regard to very local cases—and the result can, after all, only be *guessed* at by those who are only interested in reaching the truth of the case. We have endeavored to sift the evidence upon which we rely for the remarks we now subjoin, and we believe that the result will be found as given by us.

WHEAT.—The drought and the cold in the early part of the season, which has so materially interfered with other crops, did not necessarily affect the wheat; and where the effects of winter-killing were not experienced, the crop had a fair chance to mature, and the season generally, except in some portions of the West, where very severe storms were experienced, was favorable for the harvest, and whatever may be the deficiency in the *quantity*, the *quality* of the grain is almost unexceptionally good, and it has been housed in fine condition. According to the estimate made at the Agricultural Bureau of the crop of 1873, the average is less of winter wheat than that of 1872, whilst that of the spring variety is about equal to the preceding one—and the result arrived at is, that whilst the crop of 1872 was set down by the Department at 249,997,020 bushels, that of 1873 is estimated at 250,000,000 bushels. We believe this will be found to be about correct, with the advantage on behalf of this year's crop, that the quality will be found uniformly superior to that of last year. By next month the threshing in many localities will have commenced, and we may then be able to obtain more certain intelligence.

POTATOES.—On account of the drought, the early Potatoes will be decidedly short; the rains we have had, however, will beneficially affect the late planted Potatoes, but the crop for the year cannot be expected to equal that of last year—it will be decidedly less, we think.

CORN.—The lateness of the season in which the Corn was planted, and which was experienced in almost every section of the country, added to the great drought prevailing since, unless we have uninterruptedly favorable

weather until the crop is made (which is not to be anticipated) will cause a decidedly short crop, in comparison to that of last year—and, although in the West about one-fourth of last year's crop is still on hand, from the appearance of things now, it is estimated that, instead of 30 cents, the highest rate last year, at the West, Corn will bring 50 cents at most Western stations. This of course will affect the price at the East, and those who are fortunate enough to have gotten their crops in early, and in good condition, and will have Corn to spare, will obtain a good price for it—but the crop generally will be short in the Middle States as well as at the West, and as the drought has been greater at the East and the North than with us, we cannot look for anything like an average crop. In this vicinity, the last working of the Corn, which is usually done by the last of June, is not finished yet, at the latter quarter of July.

TOBACCO.—The same cause which has operated against the corn crop, has in like manner affected that of Tobacco—in some of the districts where Tobacco is principally grown, the drought has been exceedingly severe, and up to the middle of July, many of the planters have not planted out their crop, and the plants in the seed bed have been literally burnt up.

OATS.—This crop too, has in like manner suffered from the want of rain, and the straw is very short—the grain, however, looks well, but nothing like a full crop can be expected. The late storms at the West, though much exaggerated at first, and affecting to some extent the wheat and corn, also injured the Oats at the same time. Oats, we judge, will bring a good price this Fall.

HAY CROP.—In the early part of Spring, the prospects for this crop were decidedly good, and it was anticipated that an unusually large crop would be saved this year, and far beyond what was cut last—but this hope has been frustrated by the intensity of the drought, and this crop has suffered more at the North and East than in the middle Southern states—the estimate is, that not more than two-thirds of a crop can be fairly expected. A writer in the N. Y. Tribune on the crops generally, says that the general estimate is that hay will not be more than a third of a crop, but this is doubtless too low. A writer in the Boston Cultivator, from Vermont, says, that in some neighborhoods people are intending to dispose of their surplus stock, seeing the probable result of the hay crop—and the editor of the same paper is urging farmers to provide for forage, by "putting in fodder corn and turnips and for supplementing the short hay-crop"—and adds, "Will farmers take heed and thus provide for forage, so as not to be compelled to sell cows or other stock at a sacrifice the coming Fall." The high price of hay, for the crop of 1872, induced the emptying of the barns of the old stock, and the new crop, whether large or small, will have but little competition by the offerings of the old. The winter was long and severe,

and had it not been for the large amount of fodder corn sown last year for soiling, the distress would have been much greater than it was for the stock. The Boston Cultivator says, that "the drought in the west part of Maine is reported as cutting short the hay crop, and is also informed corn is unpromising; the price of hay, \$25 a ton in the field in Franklin Co., Me.; \$40 a ton in Sturbridge, at the farm; and \$30 a ton in Ware village, as verbatim reported to us last week when in that section; yet in Boston it is quoted in the Advertiser at \$28 a ton. How is this?" A subscriber to the same paper, says, "the drought is very severe in Gilmanton, N. H., and farmers in that section have given up all hopes of a hay crop." An officer in the U. S. cavalry, whose duty calls him to ride much through the country, writes his friends in Maryland, that in traversing the agricultural districts of New York, he found the hay crop to be remarkably short. The writer in the Tribune referred to above, says that, "just now Eastern dairy farmers are gloomy enough, for milk is slowly shrieking, and they cannot see how they are to carry their cows through the winter."

FOREIGN CROPS.—The London Mark Lane Express, says, that "although the weather has now changed for the better, yet there is little probability that the improvement henceforth can be so thorough and lasting as to make up for past arrears. The quality may yet be very fine, but there is a very slender prospect of quantity. It is pretty much the same way in France, where prices in very many places have risen 2s. per qr., though there has been no further advance in Paris of flour. The prevalence of rust in Hungary has been more confirmed, and growers are again on the market for delivery in Autumn at 2s. 6d. per qr. advance on the rates of a fortnight back. * * * Our own markets show little change, though more dullness has been reported, and any advance has been exceptional; yet on comparing our deliveries with those of last year, we find a deficiency of no less than 17,603 qrs., which seem to confirm the previous reports that farmers are getting pretty well cleared out."

Tobacco Crop.—A communication in the Tobacco Leaf, from R. A. Mills of Richmond, says:

"The reports from the tobacco growing districts are rather conflicting as to the present prospects of the growing crop, but I am still of the opinion, upon weighing carefully all the information I can gather, that, from present indications, the crop will be much the largest made since the war."

This is gratifying intelligence, though there is yet nothing but an opinion for it to rest upon, and it is to be hoped not only that it will be verified, but that the season will be such as to make the crop in all respects a desirable one.

PERUVIAN GUANO.—In a recent conversation with Mr. Voss, the agent in this city for the sale of this article, we were informed that there is now in this country only a few hundred tons of the old Chinchá Island brand—none of it being in Baltimore in first hands—and that no more would be received, the supply being exhausted. The cargoes last received from these islands were very inferior to those formerly furnished from the same source, and were composed mainly of scrapings in which there were a great many stones and a large proportion of moisture. The *Guanape* brand, which is the kind now imported, is claimed to average 12 per cent. of ammonia. Agent's price, \$60, gold, per ton of 2240 lbs., in lots of not less than ten tons.

VALUABLE HAY CROPS.—The Petersburg (Va.) Appeal says, "the finest hay crop raised in this portion of Virginia for a number of years past, is perhaps that at Carl's Neck estate on James River, which has just been sold for \$10,000."

Col. Brockenbrough, of Richmond Co., in the Northern Neck of Virginia, writes the *American Farmer* that he is cutting a field of grass of 1100 acres, and he expects the yield to be 1500 tons—the estimate before he began cutting, was, that a ton to the acre would be realized—he now finds that some portions of the field yields two tons to the acre, and the average is expected to be one and a half tons. We have received from Col. B. some samples of this valuable crop of hay, which may be examined at this office.

RYE AND TIMOTHY.—We have received a few heads of these grown by Mr. O. M. Duncan of Richmond Co., Va. The stalk of the former was about 7 feet long, including the head, which measured nine inches. One of the Timothy heads was 13, and another 10½ inches long.

Henry Carroll, Esq., of My Lady's Manor, Balto. Co., Md., has recently harvested a field of rye, the stalks of which were tall enough to reach the head of a man riding on horseback. The same gentleman had a field of 50 acres in wheat which is confidently believed will average 25 bushels to the acre, and which some good judges estimate will reach 30 bushels. Mr. Carroll's hay crop, usually very large, is this season quite short—he will save little more than sufficient for his own stock, instead of having a surplus for sale.

SPECULATORS IN FRUITS.—It has been a standing complaint against middle men and others, that speculators habitually start reports relative to the crops, to suit their own purposes; we regret to record an instance in which the producers have left themselves often to a similar charge. The Delaware Peninsula Fruit Growers' Association, in June, put forth an estimate that the Peach crop would reach 2,237,000 baskets—at the meeting in July, this estimate was repudiated, and is now reduced to 998,214 baskets. It was plainly intimated at the last meeting that the original estimate was got up by interested parties to further their own ends. The following resolution was adopted at the last meeting of the association:

Resolved, That both the honor and interests of this association require as careful and accurate estimate of crops as are practicable, and we urge upon our members throughout the peach-growing district to use the greatest care and circumspection in the preparation and publication of such estimates.

IMPORTED WINES.—We noticed recently the fact, that a large portion of the Wines introduced into this country, were innocent of the presence of the juice of the wine grape—in proof of this, we see it stated by the late Dr. Nott, on reliable authority, that only 30,000 barrels of wine were produced yearly in the Island of Madeira; and yet, after supplying the continent of Europe with unknown thousands, 50,000 barrels of what is called Madeira wine are annually sold in this country.

The district in which Champagne wine is made produces 800,000 baskets or dozen yearly. Of this 680,000 are known to be exported to other European nations; and yet about one million of baskets are annually sold in this country.

Among the very interesting communications in the present number, will be found one written for the Fireside Department of our paper, by Mr. Thorne, of N. Carolina. In forwarding it to us, the writer pays us a compliment in saying, that, "I scarce ever take time to write for any other paper than yours, having fallen in love with the *Farmer*, on first sight." We had a number of short, pithy articles for this Department, but they had to give way for the more solid and instructive paper from our friend Thorne.

GREAT SALE OF SHORT-HORNS.—One of the greatest sales which has ever taken place in this country, or perhaps in England, will be held 10th September, of the celebrated herd of Hon. Samuel Campbell in New York.

Bell's (London) Weekly of 23d June, says:

"The N. York Mills sale is entrusted to the charge of Mr. Page, (the well known cattle artist) and we have great pleasure in stating that Mr. Strafford, with a handsome retainer, is engaged to assist in the sale of the Duchesses and Oxfords. A rumor to this effect was abroad some time since, but was purely prophetic; the arrangement is only just completed."

As remarked last month, a cow of this breed was recently sold by Mr. Alexander, of Ky., to go to England, and doubtless Mr. Strafford, who is so well known as one of the best judges of stock in England, will carry back with him from the sale some of the finest specimens of this herd. At a large sale in Illinois in June, an imported bull, Cherub, bred by Lord Studley, of England, was knocked down to a breeder at \$6000—and the whole sale gave an average of \$915.94—cows \$874.66; bulls \$1070. The short-horns have no competitors for the supply of meat to fill the demands of the world—and from the immense number of sales in all the Western States, it would appear the demand for breeding animals of this race is largely on the increase, and at almost unprecedented prices. We have in Maryland and Virginia, herds of this valuable breed, embracing families and pedigrees equal to those of any other in this country, and this race can be as readily raised here as in the West, if the same attention was given to them.

CHROMOS.—From Messrs. Orange Judd & Co. we have received two of these pictures, much above the average productions of this kind, and which are well executed and fit to adorn the walls of any house. "The Strawberry Girl" is 14x20 inches, and is given to each subscriber to "Hearth and Home," and "Mischief Breeding," 11x13 inches, is given to each subscriber to the "American Agriculturist."

MD. AGRICULTURAL COLLEGE.—At a recent meeting of the Trustees, Genl. Samuel Jones, now a professor in the University of California, was elected President in the place of Dr. Register, who has resigned. Mr. Hobart Hutton has recently been elected professor of agriculture to fill, we believe, an original vacancy in the faculty.

VINE CULTURE.—In our last, a promise was made to present to our readers in the present number of the *American Farmer* a translation of the most material portions of the *Manual*, by Mr. Mares, of France, "*on the sulphuring of diseased vines*," affected by the *Oidium*. General L. Giddings, of Anne Arundel, who has so kindly furnished us with this translation, says that although it does not contain half of the admirable pamphlet from which it is made, yet he has endeavored so to arrange it, as to make the document intelligible and satisfactory to all readers, and that it will probably be considered by American cultivators of the vine one of the most valuable papers ever printed on the subject. We feel ourselves fortunate in being the medium through which this valuable contribution is presented to the American public, and most heartily tender our thanks to the translator for his labors in so important a cause as we believe the culture of the vine is, to the material interests of the country, and which is looming up in vast proportions in various sections. The papers which have appeared in the *Farmer* for the past few months, upon the subject, may be considered a complete manual for the culture of the vine and the manufacture of wine; and of the present number, one who has had an opportunity of examining it remarks, "every American cultivator should send you [the editors] a case of their best wine for publishing it." We have not the least objection, and will very liberally divide with our many friends. The remark made by the founder of this journal, as given in the interesting letter from Friend Stabler, may not be as applicable to the wine of the present day as it was at the time he uttered it. If our wines were "cooked up," as doubtless most of the foreign wines now are, to suit the American palate, the prejudice against them would not be so great. One of the largest, if not the largest wine producer of this State, Mr. Schmidt, recently informed us, however, that the native wines are making their way into public favor, and he is induced by the encouragement offered to enlarge his vineyards.

We may mention, as a guide to the cost of its application in this country, that sulphur sells in this city, by the quantity, at $2\frac{1}{2}$ cents per pound.

Although a very large portion of our space is already occupied with this subject, yet be-

fore dismissing it we add the following, which we find in Meehan's excellent "*Gardener's Monthly*," concerning the insect so destructive to the roots of the grape:—

The Phylloxera, or Grape Root Louse.—Too much attention can scarcely be given to this very destructive insect, which Prof. Riley believes to have caused more trouble in American grape culture than anything else. Many things have been found which will destroy the insect without injuring the grape roots, but nothing thus far very practicable.

The *Garden* gives the following, which seems more practical than anything we have seen before:

"Sulphuret of calcium dug in around the roots of vines is considered to have a powerful effect in destroying Phylloxera. This gives rise to a true sulphuric acid, in consequence of the moisture of the soil and the gentle disengagement of carbonic acid. It serves also equally well to destroy caterpillars and other injurious insects which are frequently so difficult to remove from vegetation."

VIRGINIA LANDS FOR SALE.—We call attention to the advertisement of Mr. Gilmer on another page of his fine farms in Albemarle Co., which he wishes to sell. Their situation, fertility and salubrity, are among the advantages they present, and any person wishing to become possessed of farms in that beautiful portion of Va., should write to Mr. G. for particulars and terms. His residence has recently been destroyed by fire—and he writes us he would sell one of the farms and take the amount agreed upon in building, repairing mills, burning lime, &c. To an enterprising and competent man this would offer a rare chance.

Acknowledgments.

The officers of the *Maryland Editorial Association* favored us with an invitation to accompany them on their summer excursion through Virginia and to the West, but the demands upon our time were such as to prevent our accepting it, as it would have given us pleasure to do.

From the *Massachusetts Horticultural Society* we received invitations to attend the Rhododendron Show on Boston Common, the first of its kind in this country, and one which, from the notices we find in our exchanges, was a credit to the gentlemen who got it up and ran the risks of the experiment.

MR. BRACKENRIDGE has been selected by the managers of the McDonough Institute to lay off and plant the orchards of the School Farm recently purchased near this city.

THE WEST OR THE SOUTH.—It is very certain, that a strong feeling is being aroused at the North and East, in regard to the relative advantages which are offered to the surplus population of these sections, which are overcrowded, and are ever sending forth their sons to seek homes where their labors are more likely to meet with a reward than is to be found on their native hills and valleys. The numerous publications which are being made in the journals of the day, are being heeded, as to the superior advantages of the genial climate of the South, where work is suspended for less than two months in winter, and where the land is capable of recuperation by judicious culture, and made to produce, beside most of the valuable money crops of the country, a great variety of others which cannot be raised at the North or the West—whilst in the latter, as was the case the last year, the cold weather suspends all out-door operations for six months in the year. We annex with much pleasure the following editorial from that staunch old agricultural journal, the *Massachusetts Ploughman*, showing the change which is going on in that quarter as to the direction which immigration should take—the remarks were made introductory to a letter from North Carolina, detailing the advantages of that State for intelligent farmers of small capital:—

"It is a somewhat curious historical fact, that emigration has generally settled down upon very nearly the same parallel of latitude from which it started. Exceptions, of course, occur, but they are not numerous enough to militate against the general law. The people from the East have naturally been inclined to settle in the West, and the tide is still setting that way, the growth and increase of some of the Western States being quite astonishing, to say the least.

"Perhaps if an Eastern man were asked to give a reason for a preference for the West, he would be likely to say that he did not like the hot and wilking climate of the South. The climate in the same latitude, though somewhat different, according to local circumstances, from that to which he was accustomed, could not make a radical change for him. This idea, together with the fertile and cheap lands of the West, has prevailed to such an extent as to determine the general tide of emigration, and the West has therefore grown and prospered, while the South has generally been avoided.

"But there are localities in the South where even the difference in climate would not be very radical, and we are surprised that the mountain districts of Virginia, North Carolina, and even farther south, have not at-

tracted greater attention and secured a larger proportion of intelligent and thrifty and enterprising emigrants from the East. Though we cannot pretend to judge from careful personal observation, our impressions have always been in the highest degree favorable to the western part of North Carolina as a most delightful climate and a most desirable region for farming."

NORTH CAROLINA LANDS.—We learn from a writer in the *N. C. State Journal*, that Mr. John Richardson, of London, has purchased near Ridgeway, N. C., 6000 acres of land, on behalf of an English association, which it is intended within a very short time to settle with first class English families, or of any other nationality who can appreciate refined homes, education and church privileges. Rev. Wm. Reading, of Glastonbury, England, will have charge of one of the churches. He is now at work preparing his colonists, who may be expected next fall and winter. Meanwhile houses will be built to accommodate all members of the association. This is upon the plan recently announced of a wealthy English capitalist, Mr. Grant, at the West, but upon a more limited scale, and we will guarantee that Mr. Richardson's colony will be far more successful and contented than that of his Western cotemporary's. In the immediate vicinity of Ridgeway there are already over fifty well-to-do English and Canadian families. Dr. James McCallum has been the chief agent in bringing these settlers, and their success is influencing others. Dr. McCallum is now in Canada engaged in his good work. These lands, taking into account the high priced crops, the produce and the ready access to market, are represented as the cheapest on this continent, while for health, location, good water and scenery, it is all that could be desired. Ridgeway is on the Raleigh and Gaston railroad, 56 miles north of Raleigh and 8 miles south of Virginia; has depot, post and telegraph office, a large fruit-drying factory, over a hundred acres in vines, and quite as many in peaches. Its products, besides cotton and tobacco, are all the grasses and small grains. The best wheat in the State is raised here, 35 bushels to the acre. Being situate 350 feet above tide water it is free from all malaria, and on the hottest day is fanned by cool breezes.

—The formula of J. J. Turner & Co.'s "Excelsior," in their advertisement, appears to be a perfect one for a fertilizer.

N. C. COTTON CROP.—The following letter to the Farmer, dated Lenoir Co., N. C., July 12th, gives some indication of the crops in that section of the state:—

"This, except the last three or four weeks, has been an unfavorable season for cropping, too cold and wet, and the corn having been neglected to save the cotton, we shall consequently have a short crop in all the cotton section; the acreage, too, in corn is less than last year, and the yield per acre will not be above three-fourths of the usual yield.

The average in cotton is greater than any year since the war. The plant is not so large as usual at this season of the year, but with continued good seasons, it may by the 1st of August attain its usual size, and give an average yield.

It is too early to make a reliable estimate of what the crop will be. From this time to the 15th or 20th September is the crisis. The plant is subject to many casualties, rust, worms, &c. Morning rains are very destructive to the young or fresh blooms. It blooms in the morning, and if the bloom is rained upon soon after opening, not one in a thousand will bear fruit. I have known crops of cotton to be very promising up to the 1st of August, which did not yield much above a half crop."

VIRGINIA.—A friend writes us from Cumberland Co., Va.: "The crop of wheat just secured here, is, I believe, a rather better one than that of last year. The crop of oats is a very fine one, and there is a fine stand of young clover wherever seeded. A very large crop of tobacco has been planted and a good stand secured; but this, as well as the corn crop, in consequence of the late heavy rains, is terribly overrun with grass. Of fruit there is a great abundance of every kind.

The last No. of the Farmer was a very able and interesting one. I am happy to inform you that our people are getting much more in the habit of reading the agricultural papers. A better system of cultivation is being gradually adopted, and the whole appearance of the country is assuming a more hopeful aspect. Nothing is wanting but a little capital, industry and enterprise to make this the most delightful country in the world. I see that the English and Scotch are coming to Va. in great numbers. These are the very best class emigrants, and are making the best of citizens. Some of them have settled in this region and are all most excellent people. One of these came here last year and purchased a very large place, 1400 acres, with 300 acres of river bottoms, for which he only paid \$7,000. The buildings on the place must have cost at least \$10,000."

SUMAC.—The Lynchburg Republican says: "The sumac trade of Virginia has begun for this season and promises to be larger than it has heretofore been any year since the native sumac became an article of commerce among us, although a large proportion of last year's crop still remains in the hands of first purchasers unsold."

The Florist.

Floriculture, &c.—August, 1873.

By W. D. BRACKENRIDGE, Florist and Nurseryman,
Govanstown, Baltimore county, Md.

The Green-House.

When young plants of rare varieties, that have been raised in spring, whether they are kept in a shady green-house, frame, or out of doors, will require shifting into larger pots, that is, if you want strong specimens for flowering at home; but if it is only desirable to keep plants in a stocky condition for transportation, or retarding the growth for some particular reason, all that is necessary is, to lift the plant frequently, so as to prevent the roots passing without into the ground.

An idea prevails among old plant growers, that during the months of August and September is the most propitious season for shifting into larger receivers specimens of New Holland and Cape of Good Hope plants, but we think the preference for this season is to be accounted for in this way—that other work is then not so pressing, or, it may be, that because our fathers did it then, so must we; our own opinion on this head is this, that evergreen shrubs and plants can be moved at any season, success depending more on the way the work is performed and the peculiar state of the temperature at the time.

All plants grown in pots, whether in the glass house or out of doors, should receive a partial shade by trees, wall or screen; but if they are turned out of the pots into the open border, then we say, let them have as much the benefit of the sun as possible, light, heat and moisture being necessary elements to secure a robust constitution, both in the vegetable as well as the animal kingdom.

As preparatory for winter bloom, sow, in pans and shallow boxes, seeds of Chinese Primroses, Gilly Flowers, Cinerarias, Sweet Alyssum, Calceolaria and a little Mignonette, keeping all in a cool, shady place, until such times as the plants are large enough to handle, when they should be placed singly in pots or pricked out thinly into boxes.

By a little watchfulness and perseverance, the seeds of many valuable plants may be collected, dried and put away for your own use, as well as to present to some friend, who may heretofore have been a novice to Flora's influence. Stimulating in others a love for flowers is twin brother to the diffusion of good morals in society—at least, we so view it. Seeds of Liliaceous plants should be sown immediately after ripening, otherwise they will not vegetate until the second year after sowing, and many of them, when kept long in a dry state, will not grow at all.

The Calla Lily being now very popular as a cut-flower, a few roots, in order to have them early, should be potted in rich earth and started into growth, keeping the remainder to come on in succession. Towards the end of the month it will be safe to stick in a few

Geranium and Rose cuttings in a shady spots; use a light sandy soil for this purpose, and if attention is paid in giving water regularly, well rooted plants will be had in two to four weeks after being put down. Pot the young plants so soon as roots are formed.

Pleasure Grounds and Flower Garden.

What in our estimation should constitute one of the leading features of the former, would be a smooth, level bowling green; this, when properly laid down, answers also for a croquet ground; but to have this spot agreeable, shade is necessary, therefore close to it, a few fast growing, dense-headed trees, as Maples, Elms, &c., ought to be planted, while under these, seats can be placed; and as children love variety, a swing should be added; but no lawn is fit for bowling and croquet playing, that is not perfectly level and the grass kept short, which latter is cheaply effected by our modern mowing machines. In close proximity to such spots as we have described, a large arbor of Woodbines and Trumpet flowers is desirable, which if tasteful in style, and its position well chosen, adds greatly as a charm, to which a family and their friends may resort. Close by this play-ground, we can picture in our mind's eye, a tastily laid out flower garden, where groups of Roses, Geraniums, Heliotropes and Mignonette, greet the eye of the gazer and perfume the atmosphere, while a walk leading from the dwelling to this place of enjoyment is ribboned on each side by gay lines of blushing flowers. We have seen places of this sort and known proprietors who could enjoy such rural pleasure, and whose chief delight was to have others partake with them.

A few remarks have been dotted down, which will be forthcoming next month, on fragrant trees and shrubs; at present we cannot refrain from putting in a few words in favor of that badly abused tree, the *Ailanthus glandulosa*, but more commonly known as the Paradise tree, or tree of Heaven, and right here we are ready to admit its faults; the first of these being a tendency or disposition to send up suckers from the roots, to the great detriment of sober-kept grass plots and pavements, but the next and crowning evil of all is the offensive odor emitted by the flowers of the male tree, which bears erect, greenish spikes, while the female variety is not in any way offensive in the smell of its flowers, which are followed by large and somewhat pendant bunches of flat seed, and these are withal somewhat ornamental, and any individual of taste will admit that the long pinnate, deep green foliage of either sex, constitutes them invaluable subjects of great beauty in the formation of large groups of trees on a lawn, imparting thereto an oriental and tropical aspect. Now our advice is, to discard the male and adopt the female variety, as both are easily propagated by cuttings of the roots. The wood is close grained, very heavy and susceptible of taking on a fine polish.

W. D. B.

Habits and Needs of Popular Garden Flowers.

By a Lady Correspondent of West Va.

Every one who has a flower garden will be interested in these facts, which we cull from an admirable little book of Edward S. Rand's, "Popular Flowers and How to Cultivate Them," adding a few remarks about our personal experience of some of them. Every amateur gardener knows how much is often lost for want of these timely hints:

"Depth of soil is an important element of success. Dig out the soil eighteen inches or two feet in depth. Fill up with leaves, pine needles, and good loam. All manure used should be well rotted. A liberal supply well dug into the bed when first made, will last for years. The great fault in seed sowing is planting too thickly, and this also in transplanting. When plants are growing, frequently slightly stir the surface of the soil, as thus much moisture is attracted from the atmosphere. Many plants, and all annuals, have their bloom greatly prolonged by removing flowers as soon as they fade. The leaves of bulbs should never be cut until they turn yellow; if removed earlier, it is at the expense of next year's flower. Evergreen boughs laid over plants in winter are excellent protection from alternate freezing and thawing. * * * * *

The large clumps of *Dieleytra*, *Dicentra*, or the beautiful plant known as "Bleeding Heart," should be divided and re-set every few years, as the centre of the clump dies out. Lilies of the Valley force beautifully, and in the house may bloom from Christmas until May. We have known them forced into beautiful bloom on a shelf over a kitchen range. The best *Myosotis* or Forget-me-not, is one raised in Prussia, and called *M. Imperatrice Elizabeth*, or *Semperflorens hybrida*. The flowers are deep rich azure blue, with dark yellow eye, flowering abundantly the whole season, from early spring until severe frosts; other varieties bloom for a very short time. With a rich, moist soil, it gives great satisfaction. The Peony or "Piney" delights in a deep, rich soil: the richer it is the larger will be the flowers. Disturb them as little as possible, as they grow stronger and flower better year by year. (In our own family was one which had stood and flourished nearly one hundred years.) Carnation Pinks will stand cold, but not alternate freezing and thawing; cover with evergreen boughs and pine needles. It is best to raise these from seed every year, or renew by layers, as old plants seldom give good flowers. In planting Lilies, put a handful of sand around each bulb—this prevents rotting. The long-flowered white Lily (*L. longiflorum*) is a very beautiful species, perfectly hardy even in New England, if covered with a few inches of litter. The flowers are pure white, from six to nine inches long, very fragrant, and from one to three on a stalk. Its small cost places this fine Lily within the reach of all." We can heartily endorse this, having, some years ago, sent to Mr. Vick for

a pure white Lily, hardy and fragrant. *Lilium longiflorum* was sent, and we have none that we prize so much. The perfume of a single flower in a public hall in our small town was apparent to every one, and the trumpet shape of the blossom much admired. "Its twin brothers, hardly differing save in name, cost from three to ten times as much."

The Fireside.

Beautiful Clouds.

The following graphic, natural and genuine poetic lines were written by a California school girl of fifteen:

Beautiful clouds! I have watched ye long,
Fickle and bright as a fairy throng!
Now ye have gathered golden beams;
Now ye are parting in silver streams;
Now ye are ting'd with a roseate blush,
Deepening fast to a crimson flush;
Now, like aerial spirits at play,
Ye are lightly dancing another way;
Melting in many a pearly flake,
Like the cygnets down on the azure lake!
Now ye gather again and run
To bask in the beams of the setting sun;
And anon, ye serve as a zephyr's car,
Drifting before the evening star.
O, where is the eye that doth not love
The glorious phantoms that glide above!
O, where is the heart that hath not bow'd
To its God, in the shrine of a passing cloud?

Evening.

Bees around the hive are humming,
Bringing home their golden store;
Children from their play are coming,
Wearied—they can play no more.
O'er the grass the dew is falling,
Flowers close their petals bright;
Birds are roosting, friends are calling,
As they pass, "Good-night—good-night!"

The Second Advent.

"O'er the gloomy hills of darkness,
Look, my soul, be still and gaze.
All the promises do travail
With a glorious day of grace."

This event, the most momentous, the grandest, the most awful, and yet the most glorious which has happened, or ever will happen to our planetary system, to our fallen race of immortals, which has been the vision of the seer, the theme of the sacred historian for almost countless generations; a subject affecting so directly the entire happiness or misery of each successive race of mankind, as they have wheeled into and out of the circuit of their probate being—it would seem that their almost constant, serious attention would be fixed upon it. Yet the history of the past is but the story of to-day—their thoughts are far from it. Wrapt in the sordidity of their nature—engrossed so deeply with the sensual and tangible about them—the carnal so far overbalancing their spiritual essence, that from the inception to the close of their being those matters affecting their higher interests

are sadly left entirely out of their range of mental and moral vision, or at least occupy but a faint profile upon this moral canvass.

To-day the interests of time hang in fearful equipoise. The rapid evolution of prophecy—the strict fulfilment of promises vibrating upon the harp of ages from the lightnings of Sinai, through all the intermediate cadences of the old and new dispensations down to the present—utter the almost dying notes of the exile of Patmos. Let the serious student of sacred and profane history, the close observer, divest himself for a time of the investiture of the sordid and engrossing about him, or at least hold it in temporary abeyance, and examine this question of fearful interest. Ignoring the profound so-called wisdom of Miller and like sensationists of the 19th century, who, comet-like, sprung from some unknown orbit of space,—affecting a wisdom in advance of all earthly or heavenly intelligence, naming the very hour of an event known only to the Father,—let him examine the closely fitting links of the past and the rapidly passing evolutions of to-day, and let him say how far the chain stretches, or how soon may the curtain of destiny fall upon the great drama of human action.

The key-note of the old dispensation was sounded at the very hour the inspired historian foresaw and pre-announced the fresh paintings of time grouped with Divine consistency and order upon the moral canvass—this moving panorama of ages was unfolded in wise sequence to the vision of the era to which belonged its past.

So, too, of the new (the sequent verity of the old,) yet in more rapid harmony and more lustrous in all its parts, concentrating all the hopes of the past and glories of the incipient future, the *chef-d'œuvre* of all past or to be future painting in the scenic diorama, this central attractive portraiture of hope—the babe of Bethlehem, the world's Redeemer. Each prophetic announcement of the old Bible came with literal fulfilment, the grand focal point being the "Lion of the tribe of Judah," when the Sun of Righteousness arose with healing in his wings and threw an undying halo of glory o'er the moral midnight of the period. Nearly 2000 years have passed, in whose successive centuries each brilliantly illumined the truth of the preceding, the last being the most illustrious in scientific research, in the mental and moral illumination of man, and in convincing proof of all previous prophetic dicta. To-day the nations are verging to a unity of sentiment, of interest in all their multiplicity of parts, each in emulous rivalry striving to outstrip the other in the God-like achievement of disseminating the glad tidings of peace on earth and good will to man. The moral world is already mapped out into one vast missionary diagram—from the steppes of Tartary to the frozen zones of the North, the glad tidings are being proclaimed, where late the knee of the idolater bowed to the insensate stone. So rapidly is the religion of the Bible being spread over

the vast fields of human action, that soon the dictum of the Saviour, "this gospel shall be preached amongst all nations, and then shall the end come," will be announced by the trump of the angel and the re-appearance of the world's Deliverer, when, congregated in one vast assembly, the living of to-day and the dead of the past, the seal shall be set in condemnation of the wicked and confirmation of the just; and upon the ruins of a fallen world will arise the gorgeous splendors of a new heaven and a new earth, the millennial reign of peace begin, when the "lion and the lamb shall lie down together," and sin afflict the nations no more.

The proofs of a nearly fulfilled prophecy are many. Why this running to and fro of the nations? Look at China and Japan, so isolated and bigoted for countless centuries, refusing intercourse with the outside world, suddenly opening the portals of her empire to the refulgent beams of truth and science; and religion, so long chained down by despotism and locked up in the dark ways of superstitious idolatry, is found peering through its loopholes of error. The gracious interchange of worldly commerce is swiftly opening up the way for the commerce of truth and piety, and soon the Saracen minaret, the Mohammedan mosque, the idol of the Buddhists, the altars of Confucius, will be supplanted, and o'er the temples of learning, liberty and truth, the banner of the Cross will herald to the nations the swiftly incoming period of a better resurrection.

Truth now is flashed from pole to pole on electrical currents. The steam whistle will soon utter its shrill notes on the desert of Sahara and ponderously roll its freight of missionary solicitors over the regions where late the caravan slowly plodded its weary way amid the arid sands. The holy land will soon be a net-work of railways, and full of glittering spires, of able ministers; and, disabused of all their old sorceries, the hills of Judea will be dotted with temples resonant with songs of praise attesting Jehovah's love.

Rapidly is the money power of the world being concentrated in the hands of the out-cast Jews—doubtless a mysterious moral lever, under the hand of God, to build up the waste places of his chosen people, and to confirm his promises to the fathers of its timely restoration. Buried under the ruins of the ancient cities of the East, the hand of modern science has dug out its sacred lore and confirmed the revelations of the Bible even to the diluvian age. The Bible as a rule of faith is almost reduced to material deduction.

Vast continents are being interlocked by bands of iron; ocean stretches out its arm unto ocean through artificial canals; and schemes and enterprises which a few years back seemed impractical and impossible, by the rapid evolutions of science are rendered as facile as necessary. International re-unions are now almost as common as State expositions were a few years back, and to-day we see a conclave of monarchs and poten-

tates from every clime on Austria's soil, interchanging the civil amenities of life; and the boasted mistress of the seas unlimbering her naval batteries and thundering her deafening salvos in reception of the jewelled sash of oriental Persia.

Mountains no longer stand as barriers to the commerce of nations, but thundering through their very bowels are seen the tortuous trains freighted with the various commodities of the globe. Confined lightnings now flash to distant regions the knowledge of the storming's coming torrents—preparing the way to avert its destructive agencies—so the expectant son of toil is admonished of threatened destruction of his labor, and thus the most destructive agent of nature in its untamed state—confined and controlled—is made even the express messenger of peace—a vehicle of multiform blessings to the nations of the earth.

The last half century has unfolded in lines of living light more hidden mysteries, more abstract truths, dived deeper in the arcana of knowledge than any of its predecessors—mental and moral truths are being so rapidly solved that the pen of the stenographer is burthened with their record and the brain an insufficient reservoir of its rapid and cumulative donation. "Knowledge shall be increased," but only to a certain point in a worldly sense—when man having reached the only allowable zenith of his fame—shall be called by the Author of knowledge to an account for the uses he has made of all the merchandise of this vast storehouse of wisdom when the destroying angel, with one foot on land and one on sea, shall declare that time shall be no more, and we shall enter into that empire of unlimited and expansive knowledge—knowledge pure and undefiled—how little then will appear that boasted wisdom of earth, save only so far as it provided a conduit which led to the glory of that impassable knowledge, unsearchable wisdom, riches and love of Christ.

JNO. D. THORNE.

Halifax Co., N. C., July, 1873.

DOMESTIC RECIPES.

From a Housekeeper's Note-book.

CREAM PUDDING.—Take six table spoons of flour, one quart milk, three eggs, one tea cup sugar and a little salt. Stir a little of the milk with the flour to make a batter, and boil the remainder. When the milk boils add the butter, and when cooked enough take it off and stir in the eggs, well beaten. Sift a part of the sugar in a pudding dish, then pour in the pudding and put the rest of the sugar on top. Flavor to taste and cover till cold.

BAKED APPLE DUMPLINGS.—Make some puff paste, roll it thin and cut into square pieces, roll one baking apple into each piece, put them into a baking dish, brush them with the white of an egg beaten stiff and sift powdered sugar over them. Put in a gentle oven to bake.

Baltimore Markets, July 21.*The quotations below are Wholesale Prices.*

Brands.—**Flour**—Howard St. Super, \$4.50 a 50; do. common to fair extra, \$6.00a6.50; do. good to choice do., \$6.75a7.25; do. Family, \$7.50a8.75; Ohio and Indiana Super, \$4.25a5.00; do. common to fair extra, \$5.50a6.00; do. good to choice do., \$6.25a7.00; do. Family, \$7.25a8.25; City Mills Super, \$4.50a5.50; do. low to medium extra, \$7.00a8.00; do. Rio Brands do., \$8.75a9.00; City Fancy brands, \$9.75a10.50; Fine Flour, \$3.50a4.00; Rye Flour, \$4.50a5.00; Corn Meal, City, \$3.50a3.75.

Wheat—Prime to choice White, Southern, 170a 177 cents; fair to good do., 160a166 cents; prime to choice amber do., 170a172 cents; good to prime red, 160a168 cents; Western amber, 156a160 cents.

Corn—Market quiet. Southern white, 85 cents; do. yellow, 60a62 cents; Western white, 75 cents; Western mixed, 57½ cents.

Oats—Market quiet. Sales of small lots new Southern at 52 cents; mixed Western, 45 cents; bright do., 46 cents.

Rye—Dull, and receipts light. Light sales at 60a 65 cents.

Cotton—Market firm and fairly active. We quote Middling, 30½a30¾ cents; low middling, 19a19½ cents; good ordinary, 17a17¼ cents; ordinary, 13½a 14½ cents.

Hay and Straw—Receipts small and demand fair. Western baled Hay is quoted at \$20a25; Penna., \$20a26; choice Maryland, \$20a23; Rye Straw, \$25a28; Oat Straw, \$16a18.

Live Stock—**Beef Cattle**—Market dull. We quote best on sale, 5½a7 cents; generally rated first class, 5a5½ cents; medium quality, 3½a5 cents; ordinary thin Steers, Oxen and Cows, 3½a3¾ cents.

Hogs—Demand good and receipts light. We quote corn fed, 7a7½ cents; still fed, 6¾a7 cents, net.

Sheep—Fair to good, 3½a4½ cents; good to extra, 4½a5 cents gross; Lambs, \$2.50a4.50; stock Sheep, \$2a3.50 per head.

Mill Feed—City Mills Brown Stuff, 14a17 cents per bushel; Middlings, 12a24 cents for light, and 35a 40 cents for heavy; Western Bran, \$14a15, and Ship Stuff, \$16a18 per ton.

Molasses—Muscovado, 28a32 cents; Porto Rico, 32a50 cents; New Orleans, 30a35 cents. **Syrups**—Maryland, 48a45 cents; Baltimore, 45 cents; Calvert, 40a45 cents; Canton Sugar House, 18 cents in hds., and 21 cents in bbls.

Provisions—Bulk Shoulders, 8½a8¾ cents; Rib Sides, 9½a10 cents; Clear Rib Sides, 10a10½ cents; Bacon, Shoulders, 9a9½ cents; Rib Sides, 10½a10¾ cents; Clear Rib Sides, 10½a11 cents; Hams, 14½a 16½ cents; Mess Pork, \$17.75; Lard, 9a9½ cents.

Rice—Carolina, 9 cents; Rangoon, 7 cents.

Salt—Fine, \$2.25a2.35; Ground Alum, \$1.45a1.50 per sack; Turks Island, 30a35 cents per bushel.

Tobacco—Market firm, receipts light. We quote Maryland frosted, \$3.50a4.50; sound to good common, \$5.00a7.00; good to fine brown, \$10.00a13.00; Virginia, common lugs, \$6.00a8.00; common to medium leaf, \$8a9.50; fair to good leaf, \$10.00a11.50; selections, \$12a14.

Whiskey, 94 cents.

Wool—Good unwashed, 34 cents; good pulled, 37a37½ cents; good tub-washed, 47 cents.

NEW ADVERTISEMENTS.

J. J. Turner & Co.—Excelsior.

" " —Ammoniated Superphosphate.

John S. Linton—Dairy and Stock Farm for Sale.

Geo. C. Gilmer—Virginia Farms for Sale.

Dr. F. W. Patterson—Jersey Bull for Sale.

Thornburg & McGinnis—Lime and Fert's Spreader.

Edw'd J. Evans & Co.—Trees, Seeds, &c.

T. A. Cochran—Chester White Pigs for Sale.

F. K. Phoenix—Bloomington Nursery.

Dairy and Stock Farm for Sale.

Situated in the corporate limits of the city of Athens, and containing three hundred acres of Valley and Bottom land, an abundant supply of the best water, good orchards of the different fruits, Timber enough to keep up the place, dwelling house and kitchen of brick, servants houses of wood, storage room for every thing that can be made on the place, shelters and stalls for all kinds of stock and a market at the door for every thing that can be made to sell. It is the best place, and the best improved place in the county. Price seventy five dollars per acre, cash. Possession given 1st January 1874. For further particulars address

JOHN S. LINTON,
Athens, Georgia.

aug-21

VIRGINIA FARMS FOR SALE.

I will sell upon very liberal and advantageous terms, three fine Farms, or any one of them, situated in Albemarle Co., Va. The three tracts contain respectively 1038, 815, and 1009 acres, about 600 acres of each parcel being cleared; all lay well and are well watered; have large orchards; fine barns, and tobacco houses and other necessary buildings. One of the farms has on it a grist mill good for 700 to 800 bushels of toll corn, a saw mill (not in order) a large barn with threshing machine run by water power, and also an abundance of limestone. All these lands are situated near to Rail roads, Churches, Post-offices, &c.; and I invite an examination of them, or correspondence concerning them. Address

GEO. C. GILMER,
Charlottesville, Albemarle Co., Va.

aug

Jersey Bull for Sale.

A herd book animal—gotten on the Island, but dropped a few weeks after the landing here of the dam—He is a beautiful animal, 19 mos. old, and as the owner has no further use for him, he will be sold very low. Also a Bull Calf from the same dam by a herd book bull—he is a few weeks old.

Address Dr. F. W. PATTERSON,
Garrison P. O., Balt. Co., Md.

aug 11

THORNBURG & M'GINNIS' Lime and Fertilizer Spreader,

PATENTED, 1873.

This machine spreads chip manures, fine barn yard manures, and broadcasts lime, plaster, ashes and superphosphates; and also drills the same in rows any desired distance apart, taking two rows at a time, at rates of any quantity per acre down as low as one bushel. It also broadcasts small grains with fertilizers on lands too rough for the drill.

THORNBURG & M'GINNIS,
Willow Grove Springs, Woodstock, Va.

aug-17

EDW'D J. EVANS & CO.,

YORK, PENN'A.

Fruit and Ornamental Trees,**FIELD AND GARDEN SEEDS,**

AND

HORTICULTURAL GOODS.

CATALOGUES MAILED TO APPLICANTS. aug 51

600 ACRES | 4 CATALOGUES 20 CENTS | 12 GREENHOUSES
(1) Descriptive; (2) Wholesale; (3) Bulb; (4) Fruit and Flower Plates. Immense stock and low prices. Address F. K. PHOENIX, Bloomington Nursery, Illinois. ag-31

ADVERTISING SHEET.

To Wheat Growers. EXCELSIOR,

1873



1873

Composed of 800 pounds of No. 1 Peruvian Guano, and 1200 pounds of Soluble Phosphate of Lime, (bones dissolved in sulphuric acid,) Potash and Soda,

Forming the most concentrated, universal and durable fertilizer ever offered to the farmers—combining all the stimulating properties of Peruvian Guano, and the ever durable properties of Ground Bones. Excelsior is in fine dry powder, prepared expressly for drilling, and can be applied in any quantity per acre, however small; and it is the opinion of many close calculating Farmers, after FOURTEEN years experience in testing it side by side with other popular fertilizers, that an application of 100 pounds of Excelsior is equal to 200 to 300 pounds of any other fertilizer or guano offered for sale, therefore is fully 100 to 200 per cent. cheaper.

Farmers should see that every Bag is branded as above, with the ANALYSIS and OUR NAME in RED LETTERS. All others are counterfeits.

PRICE \$60 PER TON.

aug-3t

J. J. TURNER & CO., 42 Pratt street, Baltimore.

For Sale.

CHESTER WHITE PIGS

(from stock weighing 1800 lbs. a pair.) 10 weeks old \$10 a pair. Also, Silver Duckwing and Black Breasted Red Games, from J. Y. Bicknell's stock.

Apply to T. A. COCHRAN,

aug-2t No. 4 Division street, Baltimore, Md.

SAML. SANDS & SON'S

Farmers and Planters' Agency,

FOR THE PURCHASE OF

Guanos, Fertilizers, Chemicals for making same, Improved Live Stock, Agricultural Implements and Machinery, Fruit and Ornamental Trees, Seeds, &c.

Carried on strictly as an Agency, and purchases made in most cases without charge to buyer.

Terms—CASH, or its equivalent.

SAML. SANDS & SON,

Office American Farmer, No. 9 North st.
Baltimore, Md.

my-1f

FOR SALE.

2 Thoroughbred Ayrshire Cows.
2 do. Devon Cows, bought of Col. W. W. W. Bowie.

1 Thoroughbred Devon Bull, bought of Gov. Bowie.
2 do. Jersey Cows, bought of Wm. C. Wilson
20 full blood South-Down Ewes, from 1 to 4 years old
16 Ram Lambs

WM. B. MATTHEWS,
Port Tobacco, Md.

je-3t

GUANO! GUANO!!

We have constantly on hand a No. 1 GUANO PERUVIAN GUANO, which we offer for sale in lots to suit purchasers, at Agents' Warehouse at Point of nptown.

Bone Dust and Bone Flour,

which, by analysis, is the best bone offered for sale in this market.

AA, A, B & C MEXICAN GUANO,

which we offer for sale at low prices.

Give us a call before purchasing.

ROBT TURNER & SON,

43 and 46 S. Frederick St.

FIELD SEED of best quality always on hand. feb-1y

MANUFACTURERS OF PURE

NO. 1 GROUND PLASTER.

C. S. & E. B. FREY,

No. 18 HARFORD AVENUE, BALTIMORE, Md.

And dealers in Corn Husks. Always buying and pay the HIGHEST CASH PRICE

FOR CORN HUSKS.

feb 12t

BEE-KEEPING IN A NUTSHELL.

Giving full and simple directions for making money rapidly with Bees.

MAILED FREE FOR 15 CENTS.

BANKS & RUSSELL,
Baltimore, Md.

mar-6t

WHEAT SEEDING. 1878.

J. J. TURNER & CO'S AMMONIATED BONE SUPERPHOSPHATE

ANALYSIS.

| | |
|--------------------------------------|-------|
| Ammonia, - - - - - | 2.83 |
| Soluble Phosphate of Lime, - - - - - | 29.51 |
| Bone Phosphate of Lime, - - - - - | 10.67 |

Composed of the most concentrated materials, it is

Richer in Ammonia and Soluble Phosphates

THAN ANY OTHER FERTILIZER SOLD,

Except our "Excelsior," and is made with same care and supervision—uniform quality guaranteed. Fine and dry, in excellent order for drilling. Packed in bags.

PRICE \$50 PER TON.

aug-3t

J. J. TURNER & CO., 42 Pratt street, Baltimore, Md.

TREES AND PLANTS. ROSEBANK NURSERIES,

Govanstown, Balto. co., Md.

We invite the attention of Planters and Amateur Cultivators, to our complete stock of the following:

PEARS, Standard and Dwarf.

APPLES, Standard and Dwarf.
CHERRIES, Standard and Dwarf.

PEACHES, PLUMS, and GRAPE VINES, together with other SMALL FRUITS of popular kinds.

ORNAMENTAL TREES, EVERGREENS and SHRUBS, with ROSES in great variety. A large stock of choice GERANIUMS, VERBENAS, and other bedding out plants.

75 to 100,000 two and three year old OSAGE ORANGE HEDGE PLANTS.

ORDERS by mail promptly attended to.

Catalogues forwarded on application.

jan-1f **W. D. BRACKENRIDGE.**

**CAREFULLY-BRED
JERSEY and
AYRSHIRE COWS,
HEIFER and
BULL CALVES,**

For sale by **L. E. RICE,**
feb-1f Princeton, New Jersey.

East Chester Nurseries.

**FRUIT TREES,
ORNAMENTAL TREES,
BEDDING PLANTS, &c.**

Grape Vines, Raspberries, Strawberries and other Small Fruits.

HARDY HERBACEOUS PLANTS.

SEND FOR PRICE LIST.

J. W. COBURN & CO.,

mar-1f

East Chester, N. Y.

Waverly Nursery,

OAK GROVE P. O., WESTMORELAND CO., VA.
I have a very large assortment of GRAPE VINES, PEACH TREES and DWARF PEARS, of all the popular and reliable varieties, which are offered at moderate prices, packed and delivered free of charge, either at Wirt's Wharf or Longwood, on the Potomac, or at Leeds town, on the Rappahannock. Send for Circular.
nov-1f **JOHN RUST.**

**S. E. TURNER & CO.,
STATIONERS and BLANK BOOK
MANUFACTURERS.**

Dealers in WRITING, PRINTING and WRAPPING PAPERS, ENVELOPES, TWINES, BAGS, &c, &c.

July-1y **No. 3 S. Charles street,
BALTIMORE, Md.**

ADVERTISING SHEET

V. O. EARECKSON,
LUMBER DEALER,

West Falls Avenue, first Yard South of Pratt St. Bridge.

Building Lumber, Shingles, Laths, Palings,
FENCING, &c.

LIME, BRICKS, SASH, DOORS AND MILL WORK,
may-1y **AT THE LOWEST PRICES.**

Important!
PORTABLE GAS! PORTABLE GAS!
Kuster's Non-Explosive Gaslight Fluid!

Cheapest, Safest and best Light in the World, giving a light equal to Coal Gas at the cost of one-half cent per hour! The lighting of CHURCHES, HALLS and STORES a SPECIALTY. The **Petroleum Fluid Stove** is found superior in the satisfactory and rapid manner in which it does its work—always ready and under momentary control. For Broiling Steak, Fish or Game it is unsurpassed. For Baking of Bread, Cakes and Pies, no oven with any other fuel in the world equals it. *Call and see for yourselves.*

C. F. KUSTER, { Successor to F. G. PALMER, and
late U. S. Portable Gaslight Co.,
my-12t **No. 9 South Gay street, Baltimore, Maryland**

CANFIELD, BRO. & CO.
WATCHES,
DIAMONDS AND RICH JEWELRY,
SILVER AND PLATED WARE.

American, English and Swiss **WATCHES.**
GOLD, JET, TORTOISE SHELL, CORAL AND VULCANITE
JEWELRY.

CLOCKS AND BRONZES, LEATHER GOODS,
Fans, Opera Glasses and Fancy Goods.

THE LARGEST HOUSE IN THE CITY.
PREMIUMS FOR AGRICULTURAL FAIRS FURNISHED.
BADGES AND MEDALS FOR COLLEGES AND SCHOOLS A SPECIALTY.
WATCHES CAREFULLY REPAIRED.

CANFIELD, BRO. & CO.,
july-1y *Corner Baltimore and Charles streets, Baltimore, Md.*

THE AMERICAN FARMER

BAUGH & SONS,

Manufacturers of

BAUGH'S

TRADE MARK



RAW BONE

SUPER PHOSPHATE OF LIME.

This article has been in constant use for eighteen years past, and as an ACTIVE AND PERMANENT MANURE may be relied upon by farmers for all crops. Also,

GROUND RAW BONES,

GUARANTEED PURE, and

PURE BONE MEAL.

These brands of Ground Bones are sold under a special guaranty of absolute purity.

A full line of supplies for parties making their own Phosphates.

BAUGH & SONS,

Manufacturers and Importers.

OFFICES AND WAREHOUSES,

No. 20 South Delaware avenue, Philadelphia,

And No. 103 South street,

July-31

BALTIMORE, MD.



CHILDREN'S CARRIAGES

Of every description, from highest to lowest prices, of most beautiful finish. Also, TOYS and FANCY GOODS.

No. 8 South Charles street, near Baltimore.

Also,

GEO. W. MOWBRAY.

Dr. Hampton's Vegetable Tincture,

For the cure of all Chronic Complaints. See certificates of cures at principal office,

No. 8 South Charles street, Baltimore, Md.

July-31

GEO. W. MOWBRAY.

John M. Griffith. W. M. Baker. F. C. Bryan.

GRIFFITH, BAKER & BRYAN,

41 and 43 N. PACA ST.,

BALTIMORE, Md.

Manufacturers of the



CELEBRATED BUCKEYE SELF-DISCHARGING STEEL TOOTH WHEEL

HORSE RAKE,

DEXTER WASHING MACHINE,

TINGLEY'S IMPROVED CHURN,

Right Hand CORN SHELLERS,

STRAW CUTTERS. PLOUGHS, HARROWS, CULTIVATORS, and

AGRICULTURAL IMPLEMENTS

and HARDWARE generally.

General Agents for the New BUCKEYE STATE Reaper and Mower and the celebrated "WORLD" Enclosed Gear REAPER AND MOWER, with Droppers or Self-Rake Attachments; Tornado Thresher and Cleaner and Carey Horse Power; Bullard's Improved Hay Tedder, Hagerstown Grain and Fertilizer Drill, Cider and Wine Mills and Presses, &c.

FIELD and GARDEN SEEDS of every description; FRUIT and ORNAMENTAL TREES, GUANO, BONE, PLASTER and FERTILIZERS generally. All kinds of Machinery repaired at short notice and on reasonable terms.

Call and examine or send for Descriptive Circulars and Price Lists.

GRIFFITH, BAKER & BRYAN,

Feb-1y

41 and 43 N. Paca st., Baltimore, Md.



Italian Bees,

IMPORTED AND HOME-BRED.

Set d for Circular.

E. J. PECK, Linden, N. J.

USE AUTOMATIC BEE FEEDERS.

mar-1y

Two Valuable Books.

"The Jersey, Alderney and Guernsey Cow: Their History and Management." By W. P. Hazard. Be utifully bound and handsomely illustrated. Price \$1 50

"The Management of the Dairy." A small volume full of interest for all who keep a dairy or a single cow. By C. F. Raddats. Price 35 cents. Either of the above will be sent free by mail on receipt of price by

SAML. SANDS & SON,

Publishers American Farmer, Baltimore, Md.

ADVERTISING SHEET.

COE'S SUPER-PHOSPHATE OF LIME.

Office at E. D. HALLOCK'S SEED STORE,
172 West Pratt street.

LETTER FROM BASIL S. BENSON, ESQ.

ANNE ARUNDEL Co., MD., March 22d, 1873.

MR. ANDREW COE, Baltimore, Md.

DEAR SIR:—The fifteen tons of Coe's Phosphate I bought of you last season I used on Corn, Potatoes, Cabbage and Grass; it gave perfect satisfaction on all, and produced better crops than barn-yard manure. I can cheerfully recommend it to the farming community. I shall want from fifteen to twenty tons this season.

july-1f

BASIL S. BENSON.

ORCHILLA GUANO, AA, A TRUE BIRD GUANO,

Rich in Phosphates and Alkaline Salts,

From Orchilla Island in the Carribbean Sea, belonging to Venezuela, Lat. 11° 50' N., Lon. 66° 14' W.

Packed in Good Bags, 167 lbs. each, 12 to the Ton,
\$30 per Ton, Cash.

B. M. RHODES & CO., Agents for the Sale of Orchilla Guano,

Office. 82 SOUTH ST., below Corn Exchange.

july-1y

BALTIMORE.

COTSWOLD or COMBING WOOL SHEEP.

"A FINE SAMPLE OF COTSWOLD WOOL.—Mr. C. J. B. Mitchell, of Queenstown, Maryland, has sent us a lock of wool from his Cotswold Buck, which is one of the finest samples of the sort we remember to have ever seen. Mr. Mitchell writes us that the fleece from which this lock was taken weighed 18½ lbs., and some of the locks measured 17 inches in length. The one before us is very nearly that length, and is a remarkably beautiful specimen of the wool for the Cotswolds. Who can beat it?"—*Maryland Farmer*.

The premium for the best pen of Long Wool Ewes was awarded to C. J. B. Mitchell at the Virginia State Fair held at Richmond in 1871.

PRICES FOR 1873.

Rams, 1 to 3 years old, from \$40 to \$75. Ewes, 1 to 4 years old, from \$20 to \$50.

Parties ordering more than one sheep will be allowed a deduction on above prices. A charge of one dollar each will be made for all sheep boxed for delivery.

C. J. B. MITCHELL,

QUEENSTOWN, Queen Anne's Co., Md.

july-31



PENNSYLVANIA
Agricultural Works,
YORK, Pa.

A. B. FARQUHAR,
MANAGER AND PROPRIETOR.

The Pennsylvania Agricultural Works is one of the most extensive establishments of its kind in the United States. It is furnished with improved Machinery, Foundry, Forging Rooms, Planing and Sawing Mills, Lumber Yard, &c., complete within itself. It is situated among the great Iron, Coal and Lumber fields, which form the basis of all manufacturing; and I would respectfully call the attention of the public to these advantages, confident of meriting an extended patronage.

The following are among the specialties:

AGRICULTURAL STEELS, PLOWS, CULTIVATORS, HORSE RAKES, PLOW HANDLES, THRESHING MACHINES, HORSE POWERS. &c.

HORSE POWERS.

The Horse Power is one of the most important implements, and probably the most difficult to keep in order; too much care, therefore, cannot be used in selecting the very best.

I have long made the manufacture of Horse Powers a specialty, and can safely recommend my improved Iron Geared Powers to be all that I claim for them.

FARQUHAR'S CLIMAX HORSE POWER,

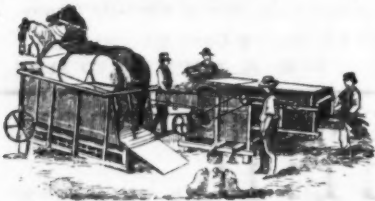
For Threshing, Ginning and General Farm Use,

ranks first; being the result of many years' labor, "practice with science," and the expenditure of thousands of dollars in experimenting.

It is remarkable for its light draft, simplicity, great strength and durability. It is fitted up with as much care as a piece of cotton machinery or steam engine, and will last as long. The rule, the "best is the cheapest," applies with special force to Horse Powers.

THE PELTON OR TRIPLE GEARED IRON POWER.

This well known power is noted for its strength, cheapness and general efficiency. Like the Climax, the gearing is all secured in an iron frame, and is uninjured by the weather. The pinions are made of chilled iron, and no pains are spared to make it a first-class, cheap power.



Improved Railway Horse Powers, Threshers and Separators,

Have been a specialty with me for many years, and those who favor me with their orders may rely upon getting a machine which will run as light, waste less grain, and give more general satisfaction than any offered.

PLOW HANDLES.

Having improved Blanchard machinery for the manufacture of Plow Handles upon an extensive scale, I can supply first quality Handles, side bent to order for any pattern of plow.

For further particulars, address
july

A. B. FARQUHAR, York, Pa.

ADVERTISING SHEET.

MARYLAND BRITANNIA
AND
GOLD AND SILVER PLATE WORKS.
ESTABLISHED 1850.

W M. HOLMES,
SALES ROOM No. 3 NORTH CHARLES STREET.
Office and Factory, Nos. 50 and 52 Holliday street,
BALTIMORE, MD.

Repairing and Replating done so as to look equal to new ware.

may-1y

LINTON & LAMOTT,

Nos. 70 and 72 NORTH STREET, BALTIMORE, MD.

DEALERS IN

Agricultural Implements and Machinery.

Large Stock of HORSE POWERS, GEISER'S SEPARATORS, JOHNSON'S
SELF-RAKE REAPER, MOWERS, DRILLS and RAKES.

may-6t.

LINTON & LAMOTT.

HARRINGTON & MILLS,

No. 140 BALTIMORE STREET, BALTIMORE, MD.

Manufacturers and Importers of

Fine Furniture, Looking Glasses, Gilt Frames, Curtains and Draperies.

We call particular notice to our large stock of **CANE FURNITURE**, embracing
Chairs, Tables, Lounges, &c, &c.; being particularly suitable for country residences,
and adapted, from its lightness and coolness, for Southern latitudes.

A large stock of Fine Furniture constantly on hand and made to order. je-1y.

A. E. WARNER,

Manufacturer of

Silver Ware, Rich Jewelry,
Watches, Diamonds, Jewelry, Silver Ware.

Importer and Dealer in

Diamonds, Fine Watches, Silver Plated Ware, Table Cutlery,
Fancy Articles, &c.

No. 135 W. BALTIMORE STREET, BALTIMORE, MD.

FINE BRONZES AND OPERA GLASSES. SOLID SILVER WARE OF OUR OWN
je-1y MANUFACTURE.

THE AMERICAN FARMER

**THOROUGH-BRED AND TROTting
HORSES**

AND

Short-Horn Cattle.

We are breeding and have for sale stock of the above description, and invite purchasers to communicate with us.

J. N. & J. D. BETHUNE, Elway Stock Farm,

ap-1f


NEAR WARRENTON, FAUQUIER CO., VA

BURNS & SLOAN,
No. 132 LIGHT STREET WHARF,
BALTIMORE, MD.

BUILDING LUMBER, SHINGLES,
ASH, OAK and WALNUT.
LIME, BRICKS, SASH & MILL WORK.

oct-12t

HUGH SISSON,
Steam Marble Works,
Cor. North and Monument Sts., Baltimore, Md.

 **MANTELS, MONUMENTS, and STATUARY,**
GRAVESTONES AND TABLE TOPS,
MARBLE COUNTERS, for Banks, Hotels and Druggists,
TILES FOR FLOORS, GARDEN STATUARY, constantly on hand,
AT THE LOWEST PRICES.

feb-1y

FERTILIZERS.
STRICTLY PURE GROUND BONE,

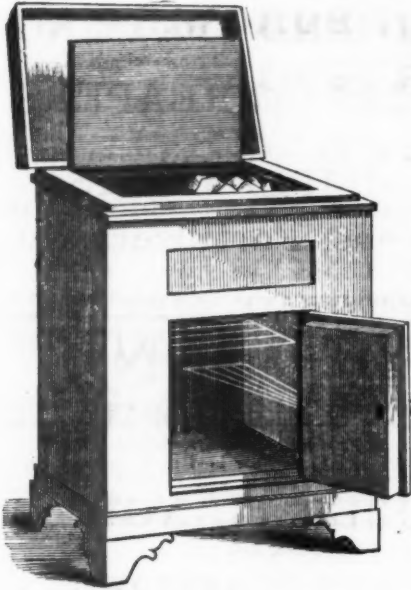
Muriate Potash, Sulphate Potash, German Potash Salts,
Nitrate Soda, Salt Cake, Nitre Cake, Sulphate Soda, Sulphate of
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**OIL VITRIOL & CHEMICALS FOR MAKING
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Nos. 36 & 38 S. Charles st., Baltimore, Md.

jan-1y



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OF THE

New Iceland Refrigerator.

HOUSE FURNISHING GOODS

FORWARDED AND PACKED

WITH

GREAT CARE

BY

SAMUEL CHILD & CO.,

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Importers of CHINA, GLASS, TABLE CUTLERY,
FAMILY HARDWARE, PLATED GOODS,
and Dealers in TIN, WOODEN and JA-
PANNELED WARE and KITCHEN
FURNITURE of every
character.

WATER COOLERS of our own make. ICE-CREAM
FREEZERS of the most approved kinds. PATENT
ICE PITCHERS, all qualities, and each warranted to be
as represented.

New and Beautiful Patterns of

ENGLISH, FRENCH AND AMERICAN

TABLE GLASSWARE.

WHISKEY, BRANDY AND
WINE DECANTERS,

SINGLY AND IN SETS.

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Our arrangements made in person with the leading
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Buying entirely for cash; with a thorough knowledge of
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JOHN C. DURBOROW,
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Cucumber Pumps, Seeds, Fertilizers, &c.

COE'S Unrivalled SUPER-PHOSPHATE, \$50 per Ton.



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Send for circular and price list.

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55 LIGHT STREET.

NEAR PRATT, BALTIMORE, MD.

nov-ly

WASHINGTON LIFE INSURANCE CO.
OF NEW YORK.

CYRUS CURTISS.....PRESIDENT.

Assets January 1, 1873..... \$3,426,203 27

Liabilities—Cash reserved for Policies,

\$2,913,102 00

Liabilities for claims due, 70,141 74 2,983,243 74

SURPLUS..... \$442,959 53

PLAN OF BUSINESS.

Premiums required in Cash.

Dividends are non forfeitable and are paid in Cash.

Assets are held in Cash.

Policies are paid in Cash.

The first question for a prudent man to ask, in determining the merits of an Insurance Company, should be: is it trustworthy and responsible? The entire history of this Company has shown that its solidity is unquestioned; no imputation to the discredit of its management having ever been uttered.

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Manager for Maryland and District of Columbia,
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COMMISSION MERCHANTS for the sale of GRAIN, BUTTER, EGGS, CHEESE, Green and Dried FRUITS, Vegetable and Country Produce generally. Also, an assortment of reliable FIELD and GARDEN SEEDS constantly on hand. Consignments solicited and prompt returns made.
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Improved Breeds of Cattle.

A number of Short-Horn, Jersey and Devon
BULLS and HEIFERS for sale, at the
FARMER OFFICE.

\$5 to \$20 per day! Agents wanted! All classes of working people, of either sex, young or old, make more money at work for us in their spare moments, or all the time, than at anything else. Particulars free. Address G. Stinson, & Co., Portland, Maine.

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IMPORTANT TO FARMERS.

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Ammoniated Bone Super-Phosphate of Lime,

Manufactured and Sold by **JOHN G. HEWES,**

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Also, **PERUVIAN GUANO, and Bones of all grades.**

IMPORTANT IMPROVEMENT IN FERTILIZERS.

German Potash Salts,

Imported directly from the mines, high and low tests.

Orders of Manufacturers promptly executed in deliveries to suit.

STOCK ON HAND FOR SALE VERY CHEAP.

Muriate of Potash, Kainit, &c.

Please call for circulars.

TATE, MÜLLER & CO.

BONE ASH, imported from South America, GROUND BONE and GUANO, for sale.

TATE, MÜLLER & CO.

52 S. Gay St., Baltimore, Md.

oct-1y

Pacific Guano Company's
SOLUBLE PACIFIC GUANO.

JOHN S. REESE & CO.,

No. 10 SOUTH STREET, BALTIMORE, Md.,

GENERAL AGENTS.

CAPITAL.....\$1,000,000.

The use of this Guano since its introduction in 1864, and the annual increase of its consumption from a few hundred tons the first year of its use, to many thousands of tons, is the best attestation to its value as an efficient agent for the increase of the products of agricultural labor, as well as to the integrity of its production.

The large capital invested by this Company in this business, and its unusual facilities, enables it to furnish a fertilizer of the *highest excellence* at the *lowest cost* to consumers.

It is the policy of the Company to furnish the best fertilizer at the lowest price, and look to large sales and small profit for reasonable returns on Capital employed.

This Guano is sold by Agents of the Company in all the markets of the Middle, Southern and Gulf States.

Price in Baltimore \$50 per Ton 2000 lbs.

may-6t

JOHN S. REESE & CO.

THE AMERICAN FARMER

THOS. NORRIS & SON,
MANUFACTURERS AND DEALERS IN
Agricultural Implements
Field and Garden Seeds, Fertilizers, &c.

Would call special attention to the following first-class Machines, &c.:

Westlinghouse Threshers and Cleaners.

Aultman & Taylor's Threshers and Cleaners.

Lever and Railway Horse Powers—most approved.

Van Wickle Wheat Fan. Price \$37.

American Cider Mill and Press—the best—\$40.

Our new Acme Plough.

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Plows, Harrows, Cultivators, Straw Cutters, Corn Shellers, and all kinds of Farming
Tools. Fresh Field and Garden Seeds, Pure Ground Bone and other Fertilizers.

CUCUMBER PUMPS,

WITH PORCELAIN LINED IRON CYLINDERS.

We are prepared to furnish, wholesale and retail, the best and cheapest Cucumber Pumps
in the country, to suit all purposes, from the small cistern to the deepest well.
Send for Descriptive Circular and Price List.

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For Harvest, 1873.
W. A. WOOD'S WORLD-RENOWNED
SELF RAKE REAPER,
WITH AND WITHOUT MOWING ATTACHMENT.

W. A. WOOD'S MOWING MACHINES,

Universally acknowledged as good as, if not superior to, any others in use. The above Ma-
chines have taken more FIRST PREMIUMS in this country and in Europe than any other
Reaping and Mowing Machines extant. Send for Descriptive Circulars. For sale by

THOMAS NORRIS & SON, Agents,

may-1y

141 Pratt street, Baltimore, Md.

Seasonable Agricultural Implements & Machinery.

R. SINCLAIR & CO.,

62 LIGHT ST., BALTIMORE, MD.

MANUFACTURERS OF ALL KINDS OF

FARM MACHINERY

AND

Agricultural Implements

AND GROWERS AND IMPORTERS OF

GARDEN AND FIELD SEEDS, &c.,

Offer for sale a large stock of

LABOR-SAVING IMPLEMENTS AND MACHINERY,

Including in part, as particularly suitable for the coming Harvest,

The "Advance Mower" or "Improved Monitor,"

The simplest, strongest and most efficient Mower in the country.

**The "New Yorker" Self-Rake Reaper and Mower
and Reaper only.**

Reapers of the most approved and Improved Patterns always
on hand.

Ithica Sulky Self-Discharging Hay and Grain Rake, the best in use.

"Philadelphia" Hand and Horse Mowers,

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SINCLAIR'S SOUTHERN IRON BRACE GRAIN CRADLES.

HAY TEDDERS, most approved patterns.

THOMAS' SMOOTHING HARROWS, for cultivating Corn, &c.

Also an unusually large and varied stock of well known and thoroughly
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R. SINCLAIR & CO.,

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GROVER & BAKER SEWING MACHINE COMPANY

**17 N. Charles Street,
BALTIMORE, MD.**

Buy one of their improved
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Sewing Machines,**

THE VERY BEST IN USE.

They combine the elements of

**BEAUTY,
DURABILITY,
SIMPLICITY AND
USEFULNESS.**

Either style embodies all the latest and most useful attachments and improvements.

The Grover & Baker Sewing Machine Company,

Is the only Company that afford the purchaser a Choice of Stitch.
They make Two Distinct Machines,

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Short-Horns FOR SALE.

Having largely increased my herd by recent purchases and importations, I am now prepared to fill orders for **SHORTHORNS** of either sex. I am now using in my Herd the "Bates" Bull "Sixth Earl of Oxford" 9984; the pure Booth Bull "Royal Briton" (27,351); the Booth Bull "Lord Abraham" 11,223; the Princess Bull Lord Mayor 6,969. This gives me a combination of the best **SHORTHORN** blood in the world. I have Calves the get of Fourth Duke of Geneva 7,931; Plantagenet 8,795 Salamander 9,046, &c., &c., &c.

I also breed **BERKSHIRE PIGS**, and have some very superior young Pigs for sale. I can ship animals to any part of the country with ease, as my farm is on the Washington Branch of the Baltimore and Ohio Railroad, 15 miles from Washington and 25 miles from Baltimore, and all way trains stop directly at my place.

Royal Briton will serve a few cows other than my own at \$250 each—no charge for keep. I shall be pleased to show the stock to all persons interested. Send for catalogue to

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PRICE REDUCED

Nice Berkshire Pigs for sale at \$20 per pair at 8 to 10 weeks old, boxed and delivered at Express Office. Send cash with order.

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**AVERILL
CHEMICAL
PAINT!**

Which, for **DURABILITY, BEAUTY** and **ECONOMY**, is unsurpassed by any other **PAINT MANUFACTURED**, and is already mixed for use, of all the different shades of color to suit the taste, and is equally good for wood, stone or iron, and will not crack nor chalk off by friction, and will preserve its color twice as long as the best Lead Paint. It is sold only by the gallon, and one gallon will cover twenty square yards of smooth surface two coats.

Send for Circulars and sample cards.

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SOLE AGENTS,
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CHOICE JERSEY CATTLE,

Bred from Imported and Herd Register Animals. **CALVES, YEARLINGS** and **COWS**—some full, solid color, with black points.

Pure bred Southdowns,

SPRING LAMBS, EWES (two to four years old), from \$15 to \$25 apiece.

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DEALERS IN

**MEXICAN AND PERUVIAN GUANO,
Phosphates, &c., and
FERTILIZERS OF ALL KINDS.**

Mexican Guano a Specialty.

Which they offer for sale at the lowest market rates. From the satisfaction expressed as to the quality of the Fertilizers furnished by us we feel confident that we can give the purchaser the full value of his money. Give us a call before purchasing.

Country Produce bought and sold.

ALSO, GROCERIES OF ALL KINDS. feb-1y

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**UPPER JAMES REAL ESTATE AGENCY,
BY WILLIAM HOLMAN,
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Who offers for sale upwards of 12,000 acres of Land, lying in one of the most desirable regions of Eastern Virginia.

Catalogues sent on application.

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Also, FIRE BRICK for COAL STOVES.

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Fowl Fountains of all sizes always on hand. mar-12t

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**Portable and Stationary Steam Engines and
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 **SWEEPSTAKES THRESHER, with CAREY or
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The above Thresher and Cleaner and Horse Powers are again offered to farmers and threshermen as possessing all the latest improvements, and we are prepared to convince the most skeptical that they will thresh and clean more grain in less time, better and with more ease to team, than any machines of their class in the market.

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SUPER-PHOSPHATE OF LIME. STANDARD GUARANTEED.

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PRICE \$50 PER TON, 2000 LBS. Discount to Dealers.

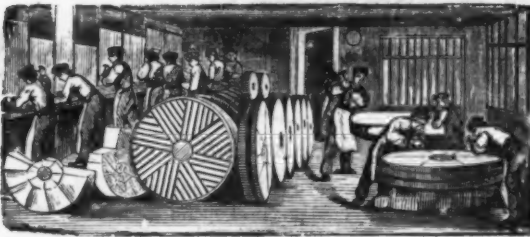
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Manufactory, Locust Point, Balto. Office, 4 S. Holliday St.

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Perfection in work and simplicity of construction have been attained in this Machine. It knits both circular and flat web with perfect selvedge edge, making a perfect hand-stitch. It narrows and widens, knitting heels and toes of stockings to perfection, with ribbed or plain stitch, and is a Crocheting as well as Knitting Machine. It makes all the intricate fancy stitches of the crocheting-needle better than hand-work. It is so simple that a child can operate it, and the rapidity of its work is truly wonderful—20,000 stitches per minute.

This Machine has carried the FIRST PRIZE at the Maryland State Fair, Maryland Institute, and Virginia State Fair, this Fall, and was the principal attraction at all of them. They are more valuable in the family than the Sewing Machine. Price, \$25 and \$35. Send for Circulars. Agents wanted in every part of Maryland. Liberal terms. Address

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may 17

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No farmer or person living in villages can afford to be without the Earth Closet. Looked at in the light of convenience, comfort and economy, it is far beyond the water closet, having all the advantages of the city water closet and none of its disadvantages, being perfectly without odor.

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All kinds of **AGRICULTURAL IMPLEMENTS** and **MACHINERY** at manufacturers' prices. Likewise,

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Of the improved breeds. In this vicinity, in some particular kinds of stock, a better selection can be made than elsewhere, and special attention will be given to buying and forwarding such animals as may be ordered.

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